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ABSTRACT

A study examined principal cost and benefit issues to be resolved in designing a new retirement system for Federal workers covered by Social Security. The new Federal system would be built on the base of Social Security and would take into account the Social Security program's taxes and benefits. The current Civil Service Retirement System (CSRS) was analyzed and was found to cost more than representative private sector pension plans (Social Security plus a pension plan), largely because the CSRS is tied to the consumer price index and because Federal employees can retire with immediate and unreduced benefits at age 55 provided they have accrued 30 years of service. Five alternative retirement plans were formulated and analyzed. It was determined that if cost-of-living adjustments and the retirement age provisions of the CSRS are replicated, benefits at retirement under the proposed systems would be smaller than at present. However, new Federal ancillary benefits could be higher, at least initially, particularly if employees participated in capital accumulation plans. The higher benefits would require a higher employee cost than the current system. (This report includes numerous tables and figures and appendixes on public and private sector retirement practices, financing the CSRS, and cost and replacement rate models and results.) (MN)

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98th Congress
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COMMITTEE PRINT

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DESIGNING A RETIREMENT SYSTEM FOR FEDERAL WORKERS COVERED BY SOCIAL SECURITY

(PREPARED BY THE CONGRESSIONAL RESEARCH SERVICE)

COMMITTEE ON POST OFFICE AND CIVIL SERVICE HOUSE OF REPRESENTATIVES

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FOREWORD

The study "Designing a Retirement System for Federal Workers Covered by Social Security" reprinted here was prepared for the Committee on Post Office and Civil Service by the Congressional Research Service. The data, views, and findings contained in the report are those of the authors and should not be viewed as those of the Committee or any of its Members. This report is another of the several steps the Committee will take as it considers the development of a supplemental retirement system for those Federal employees covered by social security.

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LETTER OF TRANSMITTAL

CONGRESSIONAL RESEARCH SERVICE,
THE LIBRARY OF CONGRESS,
Washington, DC, December 12, 1984.

Hon. WILLIAM D. FORD,
Chairman, Committee on Post Office and Civil Service,
House of Representatives, Washington, DC.

DEAR MR. CHAIRMAN: Two years ago you requested the Congressional Research Service to assist your committee in analyzing the issues in designing a new retirement system for Federal workers covered by social security. Your letter stated, "The Committee will want to consider a range of options and asks CRS to assist in their analysis, providing data on costs and wage replacement rates, as well as generalized analytical assistance."

In response to your request, the service first undertook the considerable task of developing the capability necessary to provide a uniform set of facts comparing the current Civil Service Retirement System (CSRS) to practices common in private sector and State government systems. With evidence gathered from this research, alternative plan designs were developed and compared to each other and to the current CSRS. No attempt was made to analyze either the political feasibility or desirability of these design choices.

Over the course of the study, CRS met frequently with Committee staff to discuss pension design issues, the methodology used by CRS in analyzing them, and the approach of the study itself. By employing a consistent methodology and consistent economic and demographic assumptions, this report demonstrates an approach that can be used to compare the costs and benefits of a wide range of plan options. CRS constructed a flexible, computer-based, actuarial model that was used extensively in doing this study. The model will, we trust, be of additional use to your Committee and to the Congress as the legislative issues of designing a new Federal retirement system are considered.

Seventeen analysts and support staff from CRS participated in the study. The project was managed by P. Royal Shipp. Dennis Snook was the principal analyst. While all members of the CRS project team participated in important ways throughout the entire study, they each had specific assignments, as follows:

—Leona Barber, executive secretary of the project
—Michael Burke, general research assistant
—Flora Dean and Brenda Freeman, typing and editorial assistance; Arlene Skuka, Gloria Seiger and Tracy Byrd, typing assistance

—Ken Cahill, description of State government pension systems, including costs and replacement rates
—Tom Gabe and Mike O'Grady, development of actuarial model and overall substantive participation in study methodology
—Rich Hobbie, analysis of financing and investment issues
—Geoffrey Kollman, analysis and description of disability programs
—Carolyn Merck, analysis and description of survivor benefits
—Mary Pilote, preparation of replacement rate graphs and other figures and charts
—Ray Schmitt, description and analysis of the private sector pension system, including costs and replacement rates
—P. Royal Shipp, Overview
—Dennis Snook, design issues for a new retirement system

Edwin Hustead, from Hay-Huggins Co., Inc., provided actuarial and conceptual assistance throughout the study under contract with CRS. Judy Cahill and Kirk Fitchhorn, of Hay-Huggins, also assisted.

Mary Bradford, editorial consultant, edited the report.

We are pleased to transmit this report to you, Mr. Chairman, and trust that it will assist your committee in considering legislation for a new Federal retirement system.

Sincerely,

GILBERT GUDE, *Director.*

House of Representatives,
Committee on Post Office and Civil Service,
Washington, DC, December 14, 1984.

Mr. Gilbert Gude,
Director, Congressional Research Service,
Library of Congress, Washington, DC.

Dear Mr. Gude: I commend you and the staff of the Congressional Research Service for building the organizational capability and committing the resources necessary to produce "Designing a Retirement System for Federal Workers Covered by Social Security." This study clearly meets the goal of providing for the Congress the conceptual and analytical tools necessary to analyze the numerous issues involved in the development of a supplemental retirement plan.

Your work, however, does far more than just provide a framework within which the Congress can address the legislative task at hand. Through your commitment to this project, the knowledge and expertise of numerous CRS analysts have been expanded and will be available to all Members of Congress.

The work you have done thus far is of immense value to the Committee. The continued assistance of you and the CRS staff will also be invaluable.

With kind regards,
Sincerely,

William D. Ford, *Chairman.*

House of Representatives,
Committee on Post Office and Civil Service,
Washington, DC, November 18, 1982.

Mr. Gilbert Gude,
Director, Congressional Research Service,
Library of Congress, Washington, DC.

Dear Mr. Gude: A question sure to come up in the next Congress, as it has in the past, is whether social security coverage should be extended to groups of employees not now covered by social security—including Federal workers. [A recommendation for such an extension of social security is being discussed by the National Commission on Social Security Reform.]

In the event such a proposal is seriously considered by the House of Representatives, the Committee on Post Office and Civil Service will be involved in deciding the implications of such coverage for Federal workers and retirees, and the kind of supplemental pension coverage that would be necessary to protect the interests of individuals affected by such a change.

This Committee would appreciate receiving from the Congressional Research Service (CRS) a report giving background information on the operations and financing of the Civil Service Retirement System (CSRS) on related Federal programs, and on issues raised by covering Federal workers by social security. Such a report should provide a description of the features of the current CSRS, together with statistical information on its costs, demographic characteristics, and impacts on beneficiaries. Also included should be a discussion of the objectives of Federal employee compensation policy, its impact on the composition of the Federal workforce, and the extent to which the CSRS serves those objectives. We expect the issue of social security coverage to be taken up early in the next session of Congress and would appreciate receiving such a report by January 30, 1983.

In addition, the Committee requests analytical assistance from CRS in developing program options which would protect the interests of employees and retirees if the Congress seriously considers covering Federal workers by social security. The Committee will want to consider a range of options and asks CRS to assist in their analysis, providing data on costs and wage replacement rates, as well as generalized analytical assistance.

We realize that this represents a substantial amount of work for CRS, and would like to emphasize the importance of such assistance to the Committee in preparing to deal with this technical and controversial issue.

Sincerely,

William D. Ford, *Chairman.*

PREFACE

The House Post Office and Civil Service Committee, in anticipating the possible coverage of Federal employment by social security, asked the Congressional Research Service (CRS) in November of 1982, to develop information for the committee's use as it examined the implications of such legislation. CRS began its response to that request by preparing a report for the committee describing the current Civil Service Retirement System (CSRS). That report, *Background on the Civil Service Retirement System* (Committee Print 98–5), was printed for the use of the committee on April 20, 1983.

In March of 1983, Congress passed the Social Security Amendments of 1983, thereby extending the tax and benefit provisions of social security to all Federal employees newly hired after January 1, 1984 and to certain other categories of workers with previous service. The committee then asked CRS to identify and analyze the issues involved in designing a new pension system for affected workers, so that the committee could develop and examine options. This report describes the findings of CRS research and demonstrates a methodology that can be used to compare the costs and benefits under various alternatives.

This study had two basic objectives: *First,* to describe and analyze the various pension practices outside the Federal Government and compare their costs and benefits to those of the current CSRS. This was accomplished by working out the details of a basic question: What would be the costs and benefits of plans representative of prevailing non-Federal practice, if those plans were applied to the current Federal workforce? To answer this question, the study team developed and analyzed cost and benefit data as if these illustrative plans covered Federal workers who were retiring in the present.

Second, to explore the ways in which a new CSRS could be designed for workers covered by social security. The analysis of these issues was guided in part by the description of non-Federal practice, but it focused on a different question: How would benefits be distributed and costs affected if certain retirement provisions were adopted for newly hired employees retiring 40 years from now?

The report is organized so that a range of plan choices between the current CSRS and practices outside the Federal Government can be considered. A methodology was developed that compares the costs, benefits levels, and distributional variations of alternative designs. The report answers the following key questions:

- What are the provisions of typical pension systems outside the Federal Government?
- How would the costs and benefits of representative non-Federal plans compare to the costs and benefits of the current CSRS?
- How would the costs and benefits of a plan for new Federal workers be affected by variations in particular provisions?
- How would various plans that illustrate the range between the current CSRS and common non-Federal practice compare to one another if they were constrained by the total cost to the government of the current CSRS?

The report contains five chapters and four appendices:

- *Chapter 1* is an overview of redesign issues and a summary of the information and analysis found throughout the remainder of the report.
- *Chapter 2* examines the available data on pensions in private employment and State governments.
- *Chapter 3* compares the costs and benefits of illustrative plans—two private and two State—that represent a synthesis of the practices described in Chapter 2, analyzed as if they had been applied to the current Federal workforce.
- *Chapter 4* analyzes the effects on costs and benefits of variations in pension components, as if plans with those components were applied to new employees. Components selected range from those of the current CSRS to ones found in employment outside the Federal Government.
- *Chapter 5* compares five illustrative plans that would cost the Federal Government the same as the current CSRS, but depict a range of possibilities between the current CSRS and practices common to employment outside the government.
- *Appendix A* provides additional information on Federal, State and private pensions.
- *Appendix B* examines Federal financing of employee pensions and discusses the economic and budgetary effects of that financing.
- *Appendix C* describes the methodology used in the study.
- *Appendix D* displays the replacement rates supporting various summary tables, charts and figures found throughout the report.

SUMMARY AND CONCLUSIONS

This study analyzes principal cost and benefit issues to be resolved in designing a new retirement system for Federal workers covered by social security. Employees hired by the Federal government on or after January 1, 1984 (and a few other small groups of workers) pay social security taxes and are qualifying for social security benefits as a result of their Federal employment. The new Federal retirement system will be built on the base of social security and will take into account the social security program's taxes and benefits.

Private sector and State government employers have developed pension systems that provide benefits in addition to social security, and their experience guides this study's analysis throughout.

To facilitate the analysis, the Congressional Research Service (CRS) developed two computer-based actuarial models (1) to estimate the costs of retirement systems and their components, and (2) to analyze the distribution of benefits of these systems. These models enabled CRS to compare the costs and benefits of representative private and State systems to those of the current civil service retirement system (CSRS), and to alternative designs for a new system covering affected Federal workers.

The principal findings and conclusions are:

1. The cost of the current CSRS, using commonly accepted actuarial methods, is estimated at 32.2 percent of pay—about 4 percentage points lower than the estimate of the Board of Actuaries of the Civil Service Retirement System. The CRS estimate is lower for two reasons. First, the CRS model uses the social security trustees' set of economic and demographic assumptions. Second, the CRS estimate assumes no change in the expected grade levels over the estimating period, while the Civil Service Board of Actuaries assumes a substantial increase in average grades.

2. The current CSRS costs more than representative private sector pension systems (social security plus a pension plan). Since pension plans differ on how much, if anything, employees themselves must contribute, the most useful comparisons are based on employers' cost only. The employer cost of CSRS is 24.7 percent of pay. This equals the gross cost minus the 7 percent employee contribution to the system and the 0.5 percent spent on administrative costs and payments to special groups not found in representative private and State employment.

Although the cost of private sector pension plans varies from company to company, the CRS analyzed a number of data bases that describe private pension system characteristics, and from this analysis developed representative plans. Employer costs for these representative private sector plans are lower than for the current CSRS. The most generous one costs one-fourth less than CSRS (19.0

percent of pay); the least generous one costs 40 percent less (14.8 percent of pay.)

It should be noted, however, that the Federal tax subsidy enjoyed by private employers is not taken into account in this calculation. If it were, the cost to employers for more private plans would be higher than the current CSRS. A relatively generous representative State plan costs the employer about one-seventh more than the current CSRS (28.8 percent of pay, and a less generous representative State plan about one-seventh less, 21.3 percent of pay). In addition, many State government systems, unlike private employers, require employees to contribute to their pensions.

3. Even though the current CSRS costs more than most private sector pension plans, the initial benefit paid to those retiring at age 65 is lower for most retirees. Two features of the current CSRS push its costs higher than those of private sector plans: First, benefits after retirement from the current CSRS automatically rise with the consumer price index (CPI). Private sector retirees receive significantly lower inflation protection. Although these pensions are combined with social security, which is regularly adjusted for the full amount of price changes, the pensions themselves receive only ad hoc increases which amount to an estimated 30 percent of the increase in prices. This difference in benefit adjustments for inflation accounts for the largest share of the cost differential between the current CSRS and private sector plans.

Second, Federal employees can retire with immediate and unreduced benefits at age 55 (if they have at least 30 years of service). Private sector employers do allow retirement as early as age 55, but usually the benefit is reduced.

4. The addition of social security to the retirement system will lower benefits at retirement even if costs remain the same. Most of this loss will be shifted to other benefit rights for Federal employees. In particular, social security benefits are "portable," and employees carry their accrued social security rights with them if they leave Federal employment. Transfer of benefit rights is impossible in the current CSRS. In addition, compared to the current CSRS, social security provides relatively more generous family benefits, including more extensive coverage of disabled persons and their families and to the survivors of deceased employees.

In a Federal pension system incorporating social security, the cost of these ancillary benefits would be included in the cost of the combined program. This extra cost would amount to about 2 to 3 percent of pay. If the cost of the new Federal retirement system is to be held at the cost of the current CSRS, funds available to pay benefits to regular retirees would be reduced a corresponding amount. Thus, retirement benefits would be lower than those received by similar retirees under the current CSRS.

5. Within a given retirement system any cost and benefit level can be achieved by raising or lowering the annual accrual rate—the additional percentage of salary that is earned for each additional year of employment. The cost of the current CSRS is used as the baseline for analysis of issues in designing options for a new Federal retirement system. The CRS does not endorse this or any other level of cost for the new system, and the Congress may decide on a system that costs less or more than the current CSRS. The cost of

the current CSRS is used to demonstrate the effects on retirement system costs and benefits of: (1) different methods of combining social security with a complementary civil service pension system, (2) post/retirement cost-of-living adjustments (COLAs), and (3) different retirement ages.

6. Capital accumulation plans are becoming popular as supplements to the private sector pension plans. The growth of these plans has been encouraged by the enactment of section 401(k) in the Internal Revenue Code, which permits deferral of taxes on employee and employer contributions and any earnings from the accumulating assets. This study examines the use of capital accumulation plans to supplement a new retirement system within the cost of the current CSRS. Such plans shift some risk from the employer to the employee, and create some uncertainty about size of benefits at retirement. On the other hand, such plans offer flexibility to workers in achieving retirement goals. However, some of this flexiblity could be introduced within the traditional defined-benefit plan approach.

7. The report looks closely at each of the ancillary benefits. These include the eligibility for and amount of vested benefits, survivor benefits, and disability benefits. Benefits under the current CSRS differ significantly from those of private sector plans (including social security). Alternatives for modifying the current CSRS approach to accommodate social security benefits are fully explored.

8. The report develops five alternative plans, with different features, all of which combine social security with other pension systems at the employer cost of the current CSRS. The five plans are examples of plan designs, rather than actual design alternatives. Analysis of these plans shows the effects of early retirement, COLA, and capital accumulation plans within the context of fully specified plans. If the COLA and retirement age provision of the current CSRS are replicated, at the present employer cost, benefits at retirement would be smaller than under the current system (because the new system's ancillary benefits would be greater.) However, these new Federal benefits could be higher, at least initially, than those of the current system, particularly if employees participated in capital accumulation plans. The higher benefits would require a higher employee cost than the current system.

9. The "unfunded liability" in CSRS is an accounting concept. Estimates vary depending on the method and assumptions used. OPM estimated two types of "unfunded liabilities" as of September 30, 1983: (1) the static, statutory unfunded liability was $188 billion, and (2) the dynamic unfunded liability was $528 billion. Amortizing these unfunded liabilities would have no effect on the Federal unified budget deficit. Only an interfund transaction would occur in which (a) the general fund would transfer funds to the CSRS trust fund; (b) the CSRS trust fund would receive funds from the general fund; (c) the transfer from the general fund would offset the receipt of the CSRS trust fund; and (d) the part of the gross debt held internally by the Federal government would increase. Assuming Congress would not change its policies in response to this explicit accounting, these interfund transactions would have no effect on beneficiaries or Federal taxpayers now or in the future. Thus, the

distinction between an "unfunded" and a "funded" liability in CSRS is largely semantic.

10. Congress can establish separate or combined trust funds for new and old employees. A combined trust fund would grow steadily from about $120 billion at the end of fiscal year 1984 to $1,300 billion in fiscal year 2027. There is sufficient budget authority to cover outlays for new and old employees together throughout the next 75 years. If there were separate trust funds, the fund for old employees would peak at about $250 billion at the beginning of fiscal year 1997, and then drop to a $1,200 billion deficit at the end of fiscal year 2027. In contrast, the trust fund for new employees would grow to $2,500 billion by the end of fiscal year 2027.

CHAPTER 1: OVERVIEW

I. INTRODUCTION

The Social Security Amendments of 1983 (P.L. 98-21) extended social security coverage to virtually all Federal workers hired on or after January 1, 1984. These workers, as well as certain groups with earlier service, pay social security taxes and their Federal employment earns them cash benefits from the nation's biggest social insurance program.

Over the years since the social security program was enacted in 1935, several advisory councils and commissions had recommended that Federal workers be brought into the social security system. Coverage came only after the bipartisan National Commission on Social Security Reform recommended it as an integral part of amendments needed to shore up the short- and long-run financing of the social security system.

The coverage of Federal workers accounts for 5.6 percent of the $166 billion package of financial improvements to social security during 1983-89, and 13.4 percent of the financial improvements projected for the next 75 years.

Many Federal workers, their unions and other employee groups objected to the recommendations of the National Commission because they believed social security coverage, even for new employees, threatened the solvency of the CSRS trust fund. They claimed the urgency of solving social security's financial crisis was leading to a hasty decision about Federal workers that deserved more careful study and legislative deliberation.

When Congress took up the debate and enacted social security coverage for Federal workers as part of its financing amendments, some legislators noted that it would also be necessary to establish a new Federal pension system. According to Senator Ted Stevens, Chairman of the Senate Subcommittee on Civil Service, Post Office and General Services; "Obviously a new pension system for federal employees needs to be developed to coordinate with the social security system." Congressman William Ford, Chairman of the House Committee on Post Office and Civil Service, concurred, adding, ". . . we believe that new Federal employees who become covered under social security should be provided retirement benefits comparable to those under the current civil service retirement system."

Most participants in the debate over the desirability of social security for Federal workers have agreed that such coverage would require Congress to enact an entirely new complementary pension system to accommodate the tax and benefit provisions of social security. Supporters of social security coverage have claimed, and some studies have suggested, that this program's social insurance features would give advantages to lower income and some other Federal employees and that a new retirement system for Federal workers could be designed to replicate closely the benefit distributions of the current CSRS at about the the same cost. One purpose of the present study is to analyze these benefit design and distribution issues.

II. Congress' Request for a Study

If interim legislation had not prevented it, Federal employees hired on or after January 1, 1984, and covered by social security would also have participated in the current CSRS. They would have been required to pay approximately 14 percent of their pay into the dual retirement systems, and those who worked a full career in the Federal Government would have received retirement benefits from the dual system far in excess of any currently available, sometimes larger than their highest salary level. Congress judged this undesirable, but because of insufficient time did not design a new complementary pension system before P.L. 98-21's effective date. Instead, it adopted a temporary solution—P.L. 98-168. For two years, this law requires Federal workers covered by social security to pay the regular social security payroll tax of 5.7 percent of taxable wages into the social security trust fund (net of 5.4 percent in 1984 after a 0.3 percent credit) and 1.3 percent of total pay into the CSRS trust fund. Thus, the total contribution rate paid into retirement systems by new Federal workers in 1985 will be the same as the 7.0 percent paid by workers into the current CSRS. Intended as an interim solution, these provisions expire December 31, 1985. (Federal workers were covered by medicare in 1982 and pay 1.3 percent of salary into that system.)

In the meantime, congressional committees in both the House and Senate began to examine the issues Congress would have to face in designing a new Federal pension system. The House Committee on Post Office and Civil Service asked the Congressional Research Service to contribute a major study as part of this overall effort. CRS initiated a cooperative approach with CBO and GAO and consulted periodically with analysts from those agencies as the study approach and methodology were designed and various assumptions were developed. When the study was completed, GAO and CBO participated in its final review. This study identifies and analyzes central issues that underlie the design of a new pension system.

III. Study Methodology and Scope

A. YARDSTICKS USED

In general, the study bases analysis of a new retirement system for Federal workers covered by social security on private sector and State government pension experience, and on the current CSRS.[1]

---

[1] Chapter 2 discusses the features of private sector and State government retirement systems, and Appendix A includes additional technical information about these systems. This appendix also summarizes features of the social security system and the current CSRS, and includes more extensive discussions of disability and survivor benefits under all the major retirement systems.

The benefit features of these existing retirement systems establish guidelines for analysis of design issues for the new Federal system. The cost of the current CSRS (as it operates for persons who took Federal jobs before 1984) provides the benchmark for the new system's cost. The social security program by itself and private sector retirement systems that combine social security with a pension distribute benefits along the income scale differently from the current CSRS.

The benefit distributions of possible new systems that also combine social security with a pension are compared, throughout the study, to that of the current CSRS. These benefit level and distribution comparisons may be a part of judging pension "adequacy." (All references to the "current CSRS" mean the system covering most of the Federal workforce before 1984, when social security coverage started.)

1. Cost

This study compares the cost of the current CSRS (1) to costs of pensions in the private sector and State governments, and (2) to costs of possible new Federal retirement system options with varying features.

Numerous measures of cost can be used to analyze pension systems. This study uses "entry-age normal cost," the official funding measure of the Board of Actuaries of the Civil Service Retirement System. This cost measure, used in most studies of the CSRS, is a ratio of the present value of all retirement system benefits earned over a lifetime of work divided by the present value of earnings during the same lifetime of work. Or, looked at another way, it is the amount that would have to be set aside and invested at each pay period to pay retirement costs completely when employees stop work and they or their families begin drawing benefits. The present value is defined for a typical group of new entrants at the time of entry into the Federal workforce.

The CRS estimates the entry-age normal cost of the current civil service retirement system at 32.2 percent of pay.[2] Thus, for every dollar of pay, nearly one-third of a dollar additionally is being "accrued" by workers, to be received upon retirement. Employers pay more than three-fourths of this cost (25.2 percent of pay) and employees pay the rest.

The cost of a new Federal retirement system, like that of private sector and State government systems, includes the normal cost of social security and additional pension or savings plan benefits. This study compares the cost of private sector and State government retirement systems (including social security) to the current CSRS.

Options for a new Federal retirement system all are calibrated to yield a cost comparable to that of the current civil service retirement system. The study does not endorse this particular cost figure, and if the Congress wishes to establish a new retirement system costing the government, as employer, either less or more than 25.2 percent of pay, the analytical framework developed for this study could easily accommodate such a modification. Some have criticized the relatively high level of current CSRS benefits; others maintain that the current CSRS benefit levels partially recompense employees for relatively low salaries and other fringe benefits that have not kept pace with the private sector. To this date, however, the Congress has not indicated whether the new system should cost less or more than the current system.

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[2] The CRS developed actuarial models to estimate costs and replacement rates throughout the report. Appendix C discusses the methodology and assumptions used in those models.

2. Benefit distribution

The various pension systems studied here distribute benefits differently for earners along the income scale. These differences are measured by "gross" and "net" replacement rates. Gross replacement rates show the percent of employees' final earnings replaced by their total retirement income. As used in this study, net replacement rates differ from gross replacement rates in that both final year's salary and retirement income are measured after taxes (Federal, State and local taxes, including payroll deductions for social security and pensions). This study does not use replacement rates to judge the adequacy of retirement benefits, although these rates are often used for this purpose. Instead, the study uses replacement rates to compare the level of retirement income to previous earnings and the different benefit distributions of retirement system alternatives.

Gross replacement rates for the current CSRS are constant across income classes for workers with equivalent ages and years of service. The social security system, on the other hand, distributes relatively more of its benefits to lower-paid workers through a so-called "tilt" in its benefit formula. Thus, social security replacement rates for lower-income workers are higher than they are for higher-income workers.

A new Federal retirement system can be designed to replicate the costs and benefit distribution of the current CSRS to greater or lesser degrees. This study holds constant overall employer retirement system costs for a new Federal system at the level of the current system, 25.2 percent of pay. Then it modifies each benefit feature in turn and examines the extent to which the current CSRS distributions are matched under several variations. To compare the basic benefit features of the current system with various options for designing a new Federal retirement system, the study calculates replacement rates at (1) retirement and several years later, (2) different income levels, and (3) different age and service combinations.

B. RETIREMENT SYSTEM OBJECTIVES OUTSIDE THE STUDY'S SCOPE

This study concentrates its analysis directly on issues to be resolved in designing a new system. It addresses only indirectly three objectives of retirement systems that are important, but that lie outside the study's scope.

1. Work force effects

Although retirement system design affects the characteristics of the workforce in any organization, this study makes no attempt to assess the desirability of any particular type of Federal workforce. In discussing various design possibilities, the study *does* recognize that coverage by social security permits transfer of earned retirement credits to jobs outside the Federal government, an impossibility in the current CSRS. Similarly, employer-sponsored savings plans increase portability of pension rights. These retirement system features would lead to greater employee mobility between Federal and non-Federal employment.

2. Overall retirement income adequacy

The study does not consider what the overall level of income should be for those no longer able to work (and their dependents) because of retirement, disability or death. As opposed to means-tested (welfare) programs, which base benefits and eligibility on economic need, retirement income programs typically measure income adequacy by comparing the level of income available after retirement to that shortly before retirement. This relationship, the replacement rate, is used throughout this study. Replacement rates measure benefit levels by income class, by age and years of work, and over time as inflation erodes values. Rather than independently assessing the desirability of particular levels of retirement income, this study uses the overall level of income implicit in the current civil service retirement as a comparison benchmark. Since overall benefit levels are a direct function of the cost of the retirement income system, replacement rates follow directly from this cost.

3. System financing

This study emphasizes cost and benefit design issues. Establishing financing mechanisms to ensure that earned benefit payments can be made on time raises important, but different, issues. These financing issues in Federal government retirement systems have been treated extensively in other studies and will not be analyzed here.[3] These reports conclude that the current CSRS trust fund operations do not have economic effects in themselves because they are mainly interfund transactions within the Federal unified budget. The contributions to the CSRS trust fund by off-budget entities, such as the Postal Service, are an exception to this general conclusion to the extent that their source is not a Federal general fund subsidy. This exception is not important, however, for the purposes of this report.

Appendix B points out that there are two concerns in developing the financing of the new system. First, should the new benefits be financed over the lifetime of the employees, thereby avoiding any buildup of the "unfunded liability" for new employees? Second, despite the lack of any direct economic effect from "unfunded liabilities" in themselves, a "funded" system may give greater assurance to employees that their benefits will be paid and to taxpayers that the budget explicitly accounts for future costs.

A second important question is how to invest and account for the operations of any voluntary savings plan (called capital accumulation plan) that may be established as part of the retirement

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[3] See "Financing Work-Related Entitlement Programs," Committee Print 98-49, 98th Congress; A Report Prepared by the Congressional Research Service for the Committee on the Budget, United States Senate, April 1983.

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system. If plan assets are accounted for outside the Federal budget, and invested in non-Federal securities, then the budget effect will be observed when contributions are made rather than when benefits are paid. While longrun costs and benefits may be the same under a combined savings and pension plan (which many private sector organizations now provide) with assets invested partly outside the government as they would be if invested in the government's own securities, the short-term budget consequences are different and must be considered.

IV. KEY FEATURES OF RETIREMENT SYSTEMS THAT DETERMINE BENEFIT ELIGIBILITY AND AMOUNT

Private sector organizations and State governments have had extensive experience designing pension systems that provide benefits in addition to social security. This experience guides the study's analysis throughout. To analyze any new Federal retirement system coordinated with social security, the study compares benefit costs, levels, and distribution to those of the current CSRS.

Private sector, State government, and Federal government retirement systems have similar design features that determine the conditions for benefit eligibility and amount. These key features are examined and analyzed in Chapter 2 of this report. They are briefly described in this overview.

A. DEFINED BENEFITS VS. DEFINED CONTRIBUTIONS

Pension plans fall into two major groups—defined benefit and defined contribution plans. These differ in several important ways, but they can be designed to cost the same, and to provide roughly the same benefits to participants at given retirement ages. They differ mainly over assignment of risks of unexpected economic performance. During an employee's career, the employer bears the risk in defined benefit plans and the employees bear the risk in defined contribution plans. After retirement, who bears the risk depends on the extent to which either plan provides periodic cost of living adjustments.

A defined benefit plan determines benefit amount by a formula. Upon reaching the terms specified in the definition of eligibility (usually a combination of age and years of service), the worker receives the benefit computed from the application of the formula to the employee's years of service and salary. The social security program and current CSRS are defined benefit plans, as are most private sector and State government plans covering large numbers of workers.

In a defined benefit plan, employees generally can tell roughly how much their pension will rise for each additional year of service, such as 2 percent of pay in the current CSRS.

A defined contribution plan, on the other hand, is essentially a savings plan. Individual employees possess their own retirement pension savings accounts. The plan specifies how much the sponsor will contribute during an employee's work career, usually a fixed percentage of pay. At retirement, the worker receives an annuity (in some cases, a lump sum distribution is permitted) based upon the total amount in the account, including interest earnings. Under defined contribution plans, employers know exactly what the pension obligation is and the benefits are fully funded at the time of the contribution. Employees bear the risk of variable market performance—benefitting from favorable markets and losing from unfavorable markets. The ultimate benefit cannot be prescribed with certainty.

Seventy-two percent of the plans in the private sector are defined contribution plans, but 69 percent of plan participants are in defined benefit plans. Defined contribution plans are more common to small employers and defined benefit plans are more prevalent for employers with many employees.

Either a defined benefit or a defined contribution plan (or both) could be adopted for employees of the Federal government. The structure of defined contribution plans departs from the current CSRS and from the prevailing practice of large non-Federal employers. In recent years, however, private sector employers have offered defined contribution plans in combination with a regular basic defined benefit plan. These defined contribution (savings) plans, often requiring matching employee contributions, supplement their regular pension plans. They are called capital accumulation plans.

B. FEATURES OF DEFINED BENEFIT PLANS

The study highlights several key features of defined benefit pension systems in describing and analyzing private sector and State government pension practice, the social security system, and the current CSRS. Analysis of a new Federal system will also focus on these key features: (1) the rate at which benefits are earned, (2) coordination of the pension with social security, (3) retirement age, (4) cost-of-living pension adjustments, and (5) availability of capital accumulation plans. These five features determine eligibility for benefits, the time when benefits can begin, the amount of benefits, and post-retirement benefit adjustments to prevent erosion by inflation.

1. The rate at which retirement system benefits are earned

Growth of earned retirement benefits is determined by formulas that specify age, years of work, and a wage base (usually earnings at a period near retirement). In general, greater years of work and higher earnings generate larger retirement benefits. A common practice in private pension systems is to determine the initial pension amount by setting a specific accrual rate (say 1%) to be multiplied by the appropriate wage base and years of service.

2. Coordination with social security

Most private pension systems covering salaried employees are coordinated with social security in a way that counteracts some of social security's income redistributive effects. On the other hand, most State systems preserve this social security formula "tilt" by adding pension plan benefits directly to the social security benefits.

3. *Retirement age*

The current civil service retirement system and many State government systems have earlier "retirement ages" for unreduced benefits than those of the private sector. This is not to say that employees in the private sector are unable to retire at early ages: most companies permit retirement as early as age 55—the age for the current CSRS—some with as little as 10 years of service. If private sector retirement occurs before age 62 (or 65 for some companies), however, the benefit usually is reduced. This normally is not a full actuarial reduction; the company therefore partially subsidizes early retirement. Some companies also provide capital accumulation plans that permit participating employees to use the accumulated assets to purchase an annuity that makes up for reduced benefits from the primary plan. In contrast, the current civil service retirement system and most State plans permit unreduced benefits as early as age 55 (usually at with at least 30 years of service).

4. *Cost-of-living benefit adjustments*

Unless adjustments are made to benefits after retirement, the value of benefits will decline when consumer prices rise. Benefits from the current CSRS and the social security system generally increase by the rate at which the cost-of-living rises. Few State government or private sector systems include this full inflation adjustment feature. Private sector and State government retirees benefit from inflation adjustments made by social security, but their pension checks receive only ad hoc increases. One study of private sector plans estimated that during 1973 to 1979—a highly inflationary period, ad hoc cost-of-living adjustments overall were about 38 percent as much as the total advance in the consumer price index (CPI). Postretirement benefit increases were found to vary substantially by plan size.

5. *Capital accumulation plans*

A growing number of private sector organizations and most State governments provide the opportunity for employees to participate in employer-sponsored capital accumulation plans as part of the overall retirement system. Private employers typically match, at a specified rate, contributions (typically tax deductible) that workers make to these savings plans. Assets from these plans can be used to purchase annuities that allow retirement at any age the employees choose. Thus, the plans provide employees with greater flexibility in retirement planning and they build retirement equity that employees can, when changing jobs leave in the previous employer's fund, shift to other savings, or, if permitted, transfer to the new pension plan.

V. COMPARISON OF COSTS AND BENEFITS OF PRIVATE SECTOR AND STATE GOVERNMENT SYSTEMS TO THE CURRENT CSRS

A. COST OF THE CURRENT CSRS

The CRS estimates the cost of the current CSRS to be 32.2 percent of pay, using the accepted actuarial concept of "entry-age normal cost." The Office of Personnel Management (OPM) has calculated the entry-age normal cost of the current system at 36.5 percent of pay—4 percentage points higher than CRS's estimate. The CRS actuarial model was initially validated against this OPM cost figure. Then the CRS model was modified with economic and demographic assumptions used to value the cost of the social security system. Using these assumptions, which permitted CRS to value the costs of the different retirement systems, including social security, with a common set of actuarial assumptions, CRS estimated the cost of the current system at 34.2 percent of pay. This figure differs from the OPM cost figures because of different economic and demographic assumptions.

CRS then adjusted the actuarial data base used by OPM for its cost estimates. This was done because the OPM data included an assumption about promotion patterns in the Federal Government that implied substantial "grade creep" over the working life of newly hired workers, an assumption CRS considered to be unwarranted. After promotion patterns were adjusted to keep the grade levels comparable to the present, the CRS model estimated entry-age normal cost at a lower 32.2 percent of pay. Because the OPM assumption about Federal promotion patterns, which accounts for 2 full percentage points of the agency's estimate of entry-age normal cost, would prevent reasonable comparisons among retirement systems, the promotion patterns were scaled back. This difference does not greatly affect the analysis of the CRS study, which focuses on relative costs among different types of systems and not on absolute levels.

B. FEATURES OF PRIVATE SECTOR AND STATE GOVERNMENT PENSION SYSTEMS

1. Private sector pensions

In the private sector, most salaried workers, to whom the Federal workforce is most comparable, participate in pensions that:

- do not require employee contributions to the pension plan;
- require 10 years of service before the benefits earned are vested (nonforfeitable);
- base their pension benefits on their highest 5-year's average earnings;
- are integrated with social security;
- permit retirement at age 55 with reduced benefits or at age 62 with unreduced benefits;
- make ad hoc adjustments to their retirement benefits that offset about 38 percent of the rise in the CPI in a recent period;
- include long-term disability insurance to supplement social security's protection against disability; and
- meet only minimum Federal standards for pre- and postretirement survivor benefits.

Considerable variation exists in the method of integration with social security, availability of capital accumulation plans, and specific benefit accrual rates.

2. State government pension systems

In State government systems, general service workers (excluding teachers, police and firefighters):

- are required to contribute to the pension plan;
- must participate in the plan for 5 to 10 years before earned benefits are vested;
- have their pension computed on the basis of their highest 3-year's average earnings;
- are in plans whose benefits are simply added on to social security;
- often may retire with full benefits at age 55 or earlier with 30 years of service (although a significant number of plans require age 65 for full benefits);
- receive postretirement benefit adjustments in a wide variety of ways but most commonly by an annual adjustment equal to the lower of 3.0 percent or the change in the CPI.

Variation exists among the States on certain plan features, most notably the rate at which benefits are earned, retirement age and level of employee contribution. Some States combine these features to provide a liberal benefits package; others are less generous.

C. REPRESENTATIVE PRIVATE SECTOR AND STATE GOVERNMENT PLANS

Key features determining eligibility and benefit amounts for the social security system and the current CSRS are clearly stated in Federal laws. Private sector and State government plans, however, are not uniform. This study reviewed available data to determine the variety of pension features and the extent of consistency. The study then constructed illustrative or "representative" private sector and State government plans. While the plans are not to be considered representative in a statistical sense, they include pension features for which a high degree of uniformity was found. Based on analysis of current practices, two representative plans for the private sector and two for State governments were constructed. Further, the representative private sector plans were analyzed with and without a capital accumulation plan. (Chapter 2 provides a more extensive explanation of these representative plans.)

The representative plans do not convey the complexity and variability in pension practices in the non-Federal sectors. They do illustrate common methods of combining the features that make up a retirement system. The study uses these representative systems throughout to guide the analysis of issues in designing a new Federal system.

The features identified in the previous section, common to private or State retirement systems, form the core of the representative plans. The main differences between the two private plans are: (1) normal retirement age for full benefits is age 62 in one plan and age 65 in another, (2) the early retirement reduction, and (3) they use different methods of integrating pension benefits with social security. Differences between the two State plans are (1) normal retirement age for full benefits; (2) time required to earn nonforfeitable benefits (vesting); (3) the employee contribution rate, and (4) the benefit accrual rate.

After defining the representative systems, the study first estimates the costs of the systems, then analyzes system benefits using replacement rates. (Chapter 3 presents this analysis in detail.) Then the study compares these costs and replacement rates with those of the current CSRS. The comparisons were made to identify the features of the different retirement systems that weigh most heavily in determining overall program costs. This analysis, comparing costs of the current CSRS to those of private sector and State government systems uses identical economic and demographic assumptions. Costs of pension systems are particularly sensitive to assumed economic activity, mortality and workforce characteristics and reliable comparisons should use the same assumptions. In effect, the study analyzed the costs of the different retirement systems as if these representative private sector and State government plans were applied to the Federal workforce.

D. COST COMPARISON: CSRS VS. NON-FEDERAL RETIREMENT SYSTEMS

Representative private sector systems, with or without a capital accumulation plan, have lower employer costs than does the CSRS. These private sector plans cost between 5.7 and 8.2 percent of pay less than the current CSRS when they include capital accumulation plans and 7.4 and 9.9 percent of pay less when they do not. The costs of the representative State retirement systems bracket the cost of the CSRS, with the less liberal plan costing 3.4 percent of pay less and the more generous plan costing 4.1 percent of pay more.

A recent study of 854 private sector retirement systems for salaried workers using the same methodology and assumptions as the CRS study, calculated the average costs for all companies included in the sample to be 18.3 percent of pay, 6.4 percentage points less than the 24.7 percent of pay employer cost of the current CSRS. Total employer costs (broken down by component) of the current CSRS and the representative non-Federal systems are shown in Table 1-1. The two private sector plans include a capital accumulation plan.

Basic retirement benefits initially available to most employees at age 65 are generally higher in the private sector than in the CSRS for comparable work histories. Yet, the Federal plan costs more. The following differences in retirement features cause most of the variation in plan costs: (1) Federal employees may retire with full benefits at age 55 with 30 years of service, while private sector employees choosing to retire early receive reduced benefits; (2) current CSRS benefits are generally increased by the rate of inflation, while private sector benefits receive only partial adjustments; and (3) the indexation of benefits takes place over a longer period since Federal employees retiring early receive reduced benefits. Other system costs and the level of employee contributions are roughly comparable in the private sector and current CSRS. (See Table 1-1.)

Basic retirement system benefits available to employees at age 65 are greater, and therefore more costly, in the representative State retirement systems than in the CSRS. For the more generous plan, these basic benefits cost a full 5 percent of pay more than in the CSRS. Under this plan, State employees receive basic benefits

TABLE 1-1. BENEFIT COSTS OF THE CURRENT CSRS COMPARED TO REPRESENTATIVE NON-FEDERAL RETIREMENT SYSTEMS

[Retirement system cost as a percent of pay]

Benefit feature	Current CSRS	Private sector		State Government	
		Plan 1 (more generous)	Plan 2 (less generous)	Plan 1 (more generous)	Plan 2 (less generous)
Basic benefit payable at age 65	12.2	12.0	10.8	17.2	13.9
Pre-age 65 retirement	2.8	.8		3.0	
Other benefits (vesting, disability and survivor)	5.1	5.9	5.6	8.8	7.8
Indexing	11.5	4.6	4.4	11.8	7.6
Capital Accumulation Plan		5.0	5.0		
Total benefit value	31.7	28.3	25.8	40.9	29.3
Minus employee contribution [1]	−7.0	−9.3	−9.3	−12.1	−8.1
Employer cost [2]	24.7	19.0	16.5	28.8	21.3

[1] Includes the 6.1 percent contribution to social security for plans except the current CSRS. The social security contribution throughout the study is estimated at 6.1 percent of pay. See Appendix C for the derivation of this estimate.

[2] Employer cost of the current CSRS includes a deduction of 0.5 percent of pay—the cost of administration and payment of benefits to special groups. These deductions are necessary to ensure comparability of estimates with other pension plan costs.

Note.—Direct comparison of retirement systems of the private sector overestimates the CSRS value because CSRS includes benefits found in private sector insurance programs. These elements are estimated to be worth 1% of payroll.

Note.—Because plan features are interdependent, the cost assigned to each feature would change if their order were different. Totals may not add because of rounding.

equivalent to those of the current CSRS from the State pension plan alone, in addition to substantial social security benefits. The more generous State plan also has more costly provisions for vested, survivor, and disability benefits than the current CSRS, while the cost of indexing and early retirement is about the same. The significantly greater employee contribution required by this State system reduces its employer cost in comparison to the current CSRS. Even so, this State retirement system has an employer cost that is 4.1 percent of pay above that of the CSRS.

Although the less costly representative State plan pays larger basic benefits at age 65, as well as more generous vested, survivor and disability benefits than the current CSRS, several factors reduce the cost of the plan so that the overall employer cost of the second State plan is somewhat below that of the CSRS. These less generous features include: reduced benefits for retirement before age 65; less than full indexing, paid over a shorter time and applied to a reduced benefit (if taken before age 65); and higher employee contributions including the required social security tax.

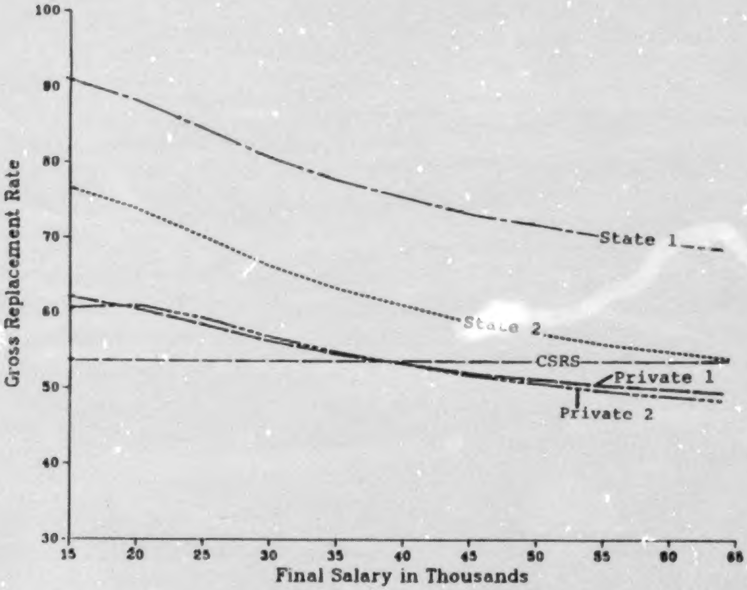
In summary, the retirement system features that tend to have the greatest effect on the comparability of cost between the CSRS and the representative private sector and State government plans are the availability of full retirement benefits before age 65 (or 62), the extent to which benefits are adjusted for price inflation, and the interaction of these two features.

E. BENEFIT LEVEL AND DISTRIBUTION: COMPARISON OF REPLACEMENT RATES

1. Gross replacement rates

Figure 1-1 shows gross replacement rates for hypothetical workers retiring at age 65 with 30 years of service. Gross replacement rates for Federal workers are the same at all salary levels (about 53 percent of the final year's salary); whereas under all the representative private sector and State government plans, they start higher but decline as final salary increases. This is caused by the tilt of social security benefits in favor of lower income workers. The two representative State pension plans provide benefits computed independently of social security, thus completely preserving this tilt. Figure 1-1 shows that retirees with final earnings all the way up to $65,000 would receive higher benefits at the time of retirement under both State systems than they would under current CSRS.

FIGURE 1-1.—Gross Replacement Rates for Representative Private Sector and State Government Pension Plans Compared to the Current CSRS—Single Employee Age 65 With 30 Years Service

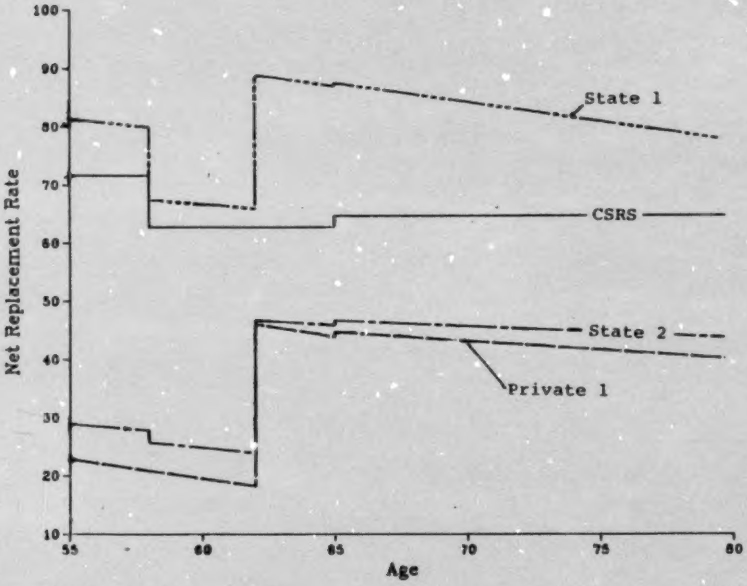


The two representative private sector systems are integrated with social security to offset part of the social security tilt that favors lower paid workers. The private sector plans use different methods for integrating pension benefits with social security, but the two methods yield replacement rates that are almost identical across the entire salary range. Both private systems (which do not include a capital accumulation plan here) provide higher gross replacement rates than CSRS for workers with final earnings up to about $40,000. From that point on, CSRS provides slightly higher replacement rates. However, most Federal retirees in FY 1983 had final earnings below $40,000.

2. Net replacement rates

While the representative plans in Figure 1-1 have initial gross replacement rates generally higher than the current CSRS for career workers retiring at age 65, this is not necessarily the case for workers retiring earlier. Furthermore, even a high initial replacement rate may not provide adequate benefits late in retirement unless benefits are adjusted for inflation. Figure 1-2 shows how replacement rates change over time for workers retiring at age 55 with $30,000 final earnings. The replacement rates are calculated using constant dollars and take into account changes in tax liability and certain payroll deductions before and after retirement. They are referred to as net replacement rates.[4]

FIGURE 1-2.—Net Replacement Rates for Representative Private Sector and State Government Pension Systems Compared to the Current CSRS—Single Employee Age 55 with 30 Years of Service, $30,000 Final Salary[5]



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[4] Chapter 3 uses both gross and net replacement rates in analyzing benefit levels and distributions for current retirement systems—private sector, State government and the current CSRS. Analysis of issues for a new Federal system, however, (see Chapter 4), shows gross replacement rates only. Gross replacement rates are used to study benefit levels and distributions for employees retiring in the future for two reasons: (1) Calculation of net replacement rates would require assuming changes in current tax laws well into the future, and (2) Gross replacement rates provide adequate support for this study's analysis of design issues for a new Federal system, including necessary projections of plan performance 40 years in the future.

[5] Private plans 1 and 2 have net replacement rates that are so close that only one of the two plans need be shown.

Representative private sector systems and the less generous State systems provide significantly lower net replacement rates than CSRS for workers choosing earlier retirement since workers retiring at age 55 not only are ineligible to receive social security, but have their pensions reduced for early retirement. However, if a worker participated in a capital accumulation plan during his entire career, net replacement rates under the private plans could be as high as those of the current CSRS. The value of a capital accumulation is highly sensitive to changes in the interaction between interest rates and inflation. These interactions over the past decade or so have been very favorable to capital accumulation plan profitability. (See page 289 for a discussion of interest rate data.) (If Figure 1-2 were revised to show workers retiring at age 62 with 30 years of service, all four non-Federal representative plans would have higher net replacement than the current CSRS. Additional replacement rate analysis is presented in Chapters 3 and 4.)

At retirement (age 55), figure 1-2 shows the most generous representative State system provides a net replacement rate of 31 percent, compared to 72 percent for the current CSRS, even though social security benefits have not commenced. Both replacement rates drop sharply if examined at age 58 because the retirees have fully recouped their own non-taxable contributions by this time and subsequent pension benefits are fully taxable. While the private sector pension is slightly eroded by inflation, there is no change in the tax treatment of the pension. Its benefits are fully taxed from the start since the employee made no contributions. At age 62, the replacement rates rise under the non-Federal pension systems because social security benefits become available. At age 65, net replacement rates also increase slightly under all systems because Federal income taxpayers qualify for an additional exemption. Thereafter, inflation erodes benefits of all the non-Federal plans, but the current CSRS maintains a net replacement rate of about 65 percent.

VI. ANALYSIS OF DESIGN ISSUES FOR A NEW FEDERAL SYSTEM

A. INTRODUCTION

Design of a retirement system for new Federal workers, most of whom will not retire until well into the next century, changes the focus of the study. Attention is directed toward possible features of a new Federal retirement system for employees just now beginning Federal service, and information from private sector and State Government pension practices is used as the basis for these design features. CRS computer models, estimating costs and replacement rates are used to draw comparisons to the current CSRS, and to show how costs, benefit levels, and benefit distributions would be affected in a Federal system designed to resemble private sector and State government practices.

To accomplish these comparisons, a basic plan model was created as an analytical device. This "backdrop" or comparison plan replicates closely the current CSRS provisions, but with social security taxes and benefits incorporated. The cost of the backdrop plan is set at the level of the current CSRS, and total benefits (social security plus pension) replicate the current CSRS as closely as possible using private sector and State design features. The backdrop plan is then modified, provision by provision, to determine how benefit distributions and costs are affected when varying pension features common to private sector and State government systems are introduced.

B. IMPACT OF SOCIAL SECURITY ON THE DESIGN OF A FEDERAL PENSION

Coverage of Federal workers by social security raises benefit design issues because the social security benefit formula distributes benefits in favor of lower income workers and the current CSRS does not. The major differences between the current CSRS and private sector and State government systems arise because the latter two include the social security benefit. Other significant differences have arisen over the years. This study outlines the major implications of incorporating social security.

1. The portability of benefits

Vested benefits from the current CSRS are not transferable (portable) to other employment, and Federal workers are faced with a serious loss of benefit values if they quit their jobs before they are eligible to receive retirement benefits. Social security vested benefits are transferable from job to job since nearly all employment is now covered by that program. Furthermore, Federal laws regulating private pensions provide greater protection to vested benefits than CSRS rules provide.

2. The distribution of benefits along the income scale

The CSRS benefits are determined by a formula that provides a portion of salary replacement for each year of service, regardless of salary level. The social security benefit formula distributes relatively greater benefits to workers with lower incomes. IRS guidelines do not permit tax-qualified pension systems to eliminate completely this distributional "tilt" to lower-wage workers from the total of pension and social security benefits.

3. The importance of age in the determination of benefits

In the current CSRS, age determines the years of service necessary to receive retirement benefits. (Unreduced benefits can start at (1) age 55 with 30 years of service, (2) age 60 with 20 years, or (3) age 62 with 5 years.) After these minimum combinations of age and service have been attained, age does not affect benefit amounts. In social security, on the other hand, retirement benefits can be received no earlier than age 62, with reductions applied to benefits received before age 65 (67 in the year 2027). Age at retirement is thus an important factor in the determination of total benefits for retirement systems that combine pension benefits and social security. Private pensions often tie eligibility and benefit computation to social security retirement ages.

4. *The COLA's granted to benefits after retirement*

Benefits of the current CSRS are generally increased by the rate of inflation. In other employment, full inflation adjustments are made only to social security. Private pension benefits are rarely increased by the rate of inflation, but ad hoc adjustments have been estimated to make up 38 percent of real benefit loss due to inflation in a recent period.

5. *Disability insurance protection*

Current CSRS disability benefits are provided to employees unable to perform their Federal jobs because of a disabling condition. The social security disability insurance program provides benefits to severely disabled workers unable to perform any job. Primarily because additional social security disability benefits are paid for dependents, they often replace a higher percentage of predisability earnings than disability benefits under the current CSRS program.

6. *Family and survivor benefits*

Social security provides benefits to spouses (age 62 or over) and children (under age 18) of retired workers, whereas CSRS does not. Social security automatically provides benefits to divorced spouses (age 62 or over) of retired workers and survivor benefits to divorced widow(ers) (age 60 or over); whereas CSRS requires a court order for spouse and survivor benefits to be paid after divorce.

7. *Discretion in retirement planning*

A growing proportion of private sector and State government systems provides greater employee discretion in retirement planning by adding one or more capital accumulation plans to the total pension design. A capital accumulation plan, as part of a new Federal system, would allow more employee flexibility in retirement planning. For example, by contributing to an employer-matched capital accumulation plan, employees could replicate the overall benefit generosity of the current CSRS.

8. *Lower retirement benefits at the same cost*

Because of certain characteristics of the social security program, under all design options for this analysis, benefit levels for retirees will be lower than under the current CSRS, even though overall costs are the same. (If retirement benefits were increased to current levels, overall costs would rise by 2-3 percent of pay.) For the most part, the value of these benefits is not lost to the Federal workers but is shifted from retirement to other types of benefits. These shifts include the following items.

a. Portability.—Social Security benefits earned in Federal employment will be transferable to jobs outside the Federal government. This increases benefit rights of workers who will leave Federal service compared to those who leave under the current system. The estimated cost of this improved portability accounts for nearly two-thirds of the total difference.

b. Family benefits.—Social security benefits will become payable to certain dependents of retirees, disabled workers, and survivors who are not paid under the current CSRS. In addition, some survivors and dependents will receive higher benefits than would be payable under the current system. These additional family benefits account for about one-sixth of the total difference.

c. Lower income workers in other employment.—Average Federal wages are higher than average wages in other employment covered by social security. Because social security replaces a greater proportion of the wages of lower-paid workers, some social security benefits will be redistributed from Federal workers to workers with lower career average wages in employment outside the government. This benefit redistribution to non-Federal workers is caused by social security coverage of all types of employment including temporary, part-time and minimum wage jobs that are not common in the Federal government. It accounts for about one-sixth of the 2-3 percent of pay difference.

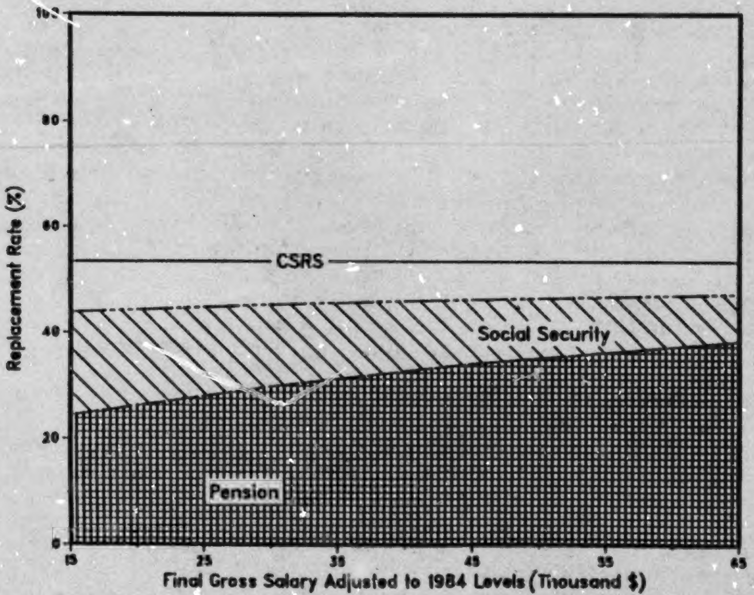
C. APPLYING THE METHODOLOGY TO THE ISSUES

The first step in analyzing the issues of covering Federal workers by social security is to replicate as closely as possible the benefits and contributions earned in Federal employement from benefits payable under the current CSRS, and subtracting social security taxes from the CSRS contribution amount.

Because, as mentioned above, any system coordinated with social security will show lower replacement rates for retirees than the current CSRS, to replicate the current system's retirement benefits would cost 2-3 percent of pay more than the current CSRS. (One percent of total pay equals about $700 million in 1984 dollars.)

Consequently, the retirement benefits of such plans must replace a lower share of final earnings in order to duplicate the current system's costs. This is shown by Figure 1-3, which depicts a 100 percent offset plan at the cost of the current CSRS, for a worker retiring in the year 2030.

FIGURE 1-3.—100 Percent Offset—Constant Cost/Gross Replacement Rates—Single Worker Age 62 with 30 Years of Service



As Figure 1-3 shows, the current CSRS replaces about 53 percent of the final salary of a worker retiring with 30 years of service. The 100 percent offset plan replaces between 44 percent and 47 percent (depending on salary) at the cost of the current system. The slight upward tilt in replacement rates occurs because the offset is applied to full social security benefits payable at age 67 (when full benefits will be payable in the year 2030). These workers, retiring at age 62, receive social security benefits reduced 30 percent for early retirement. Social security's benefit reduction at age 62 has relatively more impact on beneficiaries with lower wages because a larger portion of their total benefits comes from social security. Were these workers shown to be retiring at age 67, replacement rates would be level across the salaries. Age 62 with 30 years of service is shown because it closely approximates a representative career in both Federal and private employment, and because it is the earliest age at which social security benefits can be received. Level replacement rates could also be achieved by offsetting the social security benefit actually payable, but this would be more complex to administer. (See Chapter 4 for a complete discussion.)

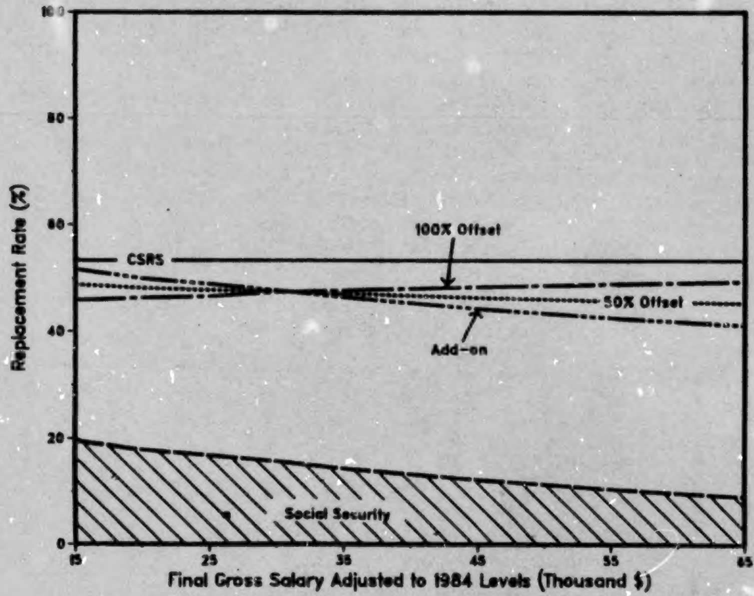
D. DISTRIBUTIONAL ISSUES RAISED BY COORDINATION WITH SOCIAL SECURITY

Pensions meeting the criteria for tax qualification under IRS rules are not permitted to subtract 100 percent of the social security benefits because the total benefit in such a plan would replace too high a proportion of the salaries of high income workers relative to the lower paid. The maximum offset percentage allowed by IRS is 83⅓ percent, but that maximum is subject to numerous other rules governing the distribution of plan benefits. In many cases even 83⅓ percent would not be permitted. The most common offset percentage used in private pensions is 50 percent; i.e., one-half of the social security benefit is subtracted from the benefit calculated by the pension formula. The other principal technique for integrating pensions with social security is the "step-rate" method discussed in Chapter 2. This method can accomplish the same basic purposes as does an offset plan, and is not analyzed in this part of the study.

At the opposite end of the spectrum from 100 percent offset plans are plans with coordination approaches that maintain the social security benefit tilt entirely. These plans simply compute the pension independently from whatever social security benefits are provided. Add-on approaches are often found in State government pensions, in the U.S. military retirement system, and in older, collectively-bargained plans. Relatively few private sector organizations with salaried employees provide add-on plans.

Figure 1-4 compares the distributional effects of 100 percent offset, 50 percent offset, and add-on plans with the current CSRS.

FIGURE 1-4.—Backdrop Plan Variations: Comparison of Three Coordination Approaches—Single Worker Age 62 With 30 Years of Service



As Figure 1-4 shows, different approaches for coordinating pension benefits with social security alter the distribution of benefits along the income line, but if total costs spent for retirement are the same, the replacement rates for workers with average preretirement salaries will also be the same. The replacement rate at higher or lower preretirement salaries varies to the extent that the social security tilt is retained or counteracted by the coordination technique. The particular integration approach selected does not necessarily affect plan costs, but it does affect distribution of plan benefits among workers at different salaries.

E. REPLICATION OF IMPORTANT CSRS PROVISIONS

A particular technique of integrating pension benefits with social security is selected to achieve a particular benefit distribution. The current CSRS does not vary replacement rates by income, while such a variance is a principal effect of the social security benefit formula. Even with social security, however, it is possible to design a system that maintains the important provisions of the current CSRS.

Figure 1-5 shows gross replacement rates for a worker retiring under a new Federal system at age 55 with 30 years of service and a final preretirement salary of $30,000. (This worker has an approximately average final salary, and replacement rates would stay roughly the same under all techniques for coordinating social security and pension benefits.) Replication of the current CSRS design of level income throughout retirement is accomplished by adding a supplement comparable to the social security benefit from age 55 to age 62. This supplement is structured so that when social security becomes payable at age 62, the total benefit amount (social security plus pension) is constant throughout the entire retirement period. To provide this constant benefit for later ages, the initial pension must be fully indexed throughout the period. Thus, at the cost of the current CSRS, it would be possible to replicate the level benefit approach of the current CSRS. (However, as noted above, the replicated system shows lower replacement rates because, at constant cost, the social security program provides relatively high portability and ancillary benefits and less benefits at retirement.)

FIGURE 1-5.—Backdrop Plan Replication Variation—Single Worker Age 55 With 30 Years of Service, $30,000 Final Salary

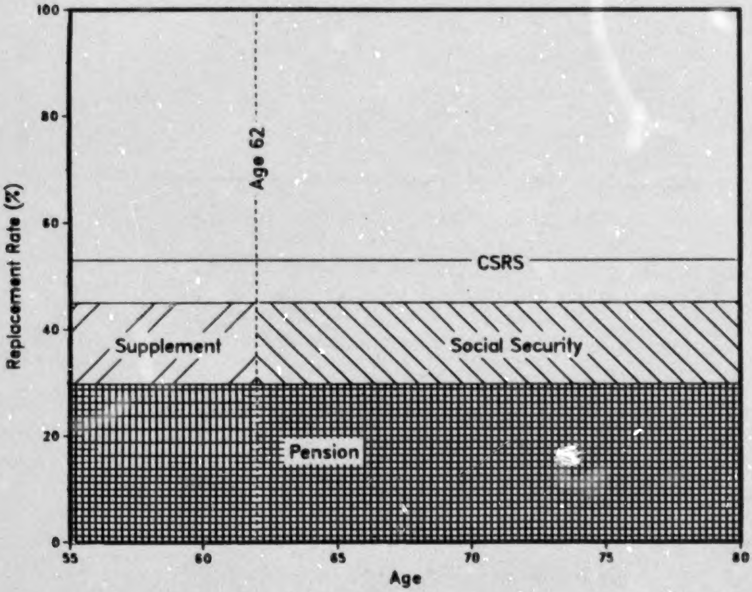


Figure 1-5 shows the pension replacing about 30 percent of the worker's preretirement salary, with social security providing another 15 percent for a total of 45 percent, compared to the current CSRS rate of 53 percent for the same worker. The social security benefit is prorated to show only that value earned during the Federal career. The supplement payable from age 55 to the beginning of social security benefits at age 62 costs about 0.7 percent of pay. If the supplement were not paid and the savings restored to the basic pension, the pension benefit would average about three points higher, starting at age 62. However, the total replacement rate would be substantially lower during age 55 to age 62.

The plan is also shown with a full COLA after retirement. Benefits would retain their real value over time under this provision rather than decline in relation to prices after retirement. If the COLAs were limited to 50 percent of the price changes measured by the CPI, the plan would cost about 4.3 percent of pay less. The real value of pension benefits would decline on average about 26 percent between age 55 and age 80, relative to the purchasing power of the pension at retirement.

Table 1-2 displays other changes, and their effect on system costs, that could be made to the pension plan in a new Federal system.

Table 1-2.—Change in Normal Cost Resulting From Alternative Design Features

Cost of Backdrop Plan: 32.2 Percent of Payroll

If the backdrop plans are adjusted by:	Then the pension cost as a percent of payroll changes by:
No supplement before age 62	−0.7
No supplement, social security offset applied at retirement; 3 percent per year reduction for retirement before age 62	−3.4
Full actuarial reduction for retirement before age 62	−4.3
COLA at 50 percent of CPI	−4.3
No COLA	−7.1
Increase accrual rate 0.1 percent a year	+1.6
Reduce accrual rate 0.1 percent a year	−1.6

NOTE.—In offset plans, offset can be applied when social security payments begin or at actual retirement.

The current CSRS provides full retirement benefits at earlier ages than either social security or private pension plans. A new Federal system designed to discourage early retirement would reduce costs because of a smaller number of retiring workers in early years, and the shortening period of retirement of those who retire later. Savings achieved from later retirement could be restored to the basic plan formula (by increasing the benefit accrual rate). This would reward workers who stay until later ages, and in effect, compensate for the lower retirement benefits in any constant cost plan that includes social security.

F. DISCRETIONARY BENEFITS: CAPITAL ACCUMULATION PLANS

Any savings that might be achieved by early retirement reductions, COLA cuts or lower accrual rates could be used to add a capital accumulation plan, a common feature of many private sector and State government systems. For this study, the supplemental plans are voluntary, with employers matching employee contributions, and are analyzed in terms of overall constant employer cost. For illustrative purposes, the projected cost of the defined benefit pension plan was reduced and was used to pay contributions of the employer (the Federal government) needed to match employee contributions for a capital accumulation plan.

The capital accumulation plans were designed with a 50 percent match of employee contributions up to 6 percent of salary—representative of private sector plans. Because higher paid workers tend to save more than lower paid workers, including capital accumulation plans in the overall retirement system would distribute employer-paid retirement benefits to higher income workers. In other words, one effect of these plans is to reduce the social security distributional tilt to lower wage workers. Figure 1-6 shows a voluntary capital accumulation plan designed to provide a larger supplement before age 62 for new Federal workers retiring at age 55.

FIGURE 1-6.—Backdrop Plan Variation: Capital Accumulation Plan—Single Worker Age 55 with 30 Years Service, $30,000 Final Salary

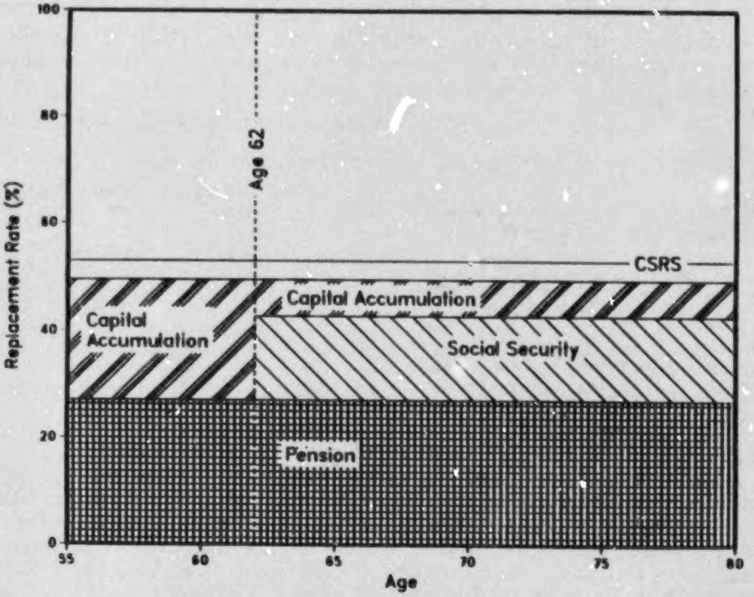


Figure 1-6 shows a replacement rate of 50 percent for an employee fully contributing to the capital accumulation plan for 30 years. Employees not contributing would receive 27 percent from pensions, about 3 percentage points less than if the same plan had no capital accumulation plan and costs were held constant. Employees partially contributing would receive an amount in between.

Employees could choose among various forms of benefits from the capital accumulation plan. The benefit could be a lump sum of accumulated amounts, or it could be an indexed or unindexed full life annuity. In Figure 1-6, the payment is shown as a two-step annuity with a fixed term as the first step (from age 55–62) and the remainder an indexed full life annuity to begin after age 62. Many private sector plans permit employees to borrow against accrued amounts or to draw them down under specified conditions. Different repayment requirements are established.

The capital accumulation plans analyzed in the study are intended to illustrate the kinds of increased discretion an employee might be given in retirement planning. The basic trade-off for the employee is between current or deferred compensation—salary or capital accumulation. These plans were projected using the same economic, demographic and workforce assumptions that were used for the basic plans—including interest rates.

One feature of capital accumulation plans distinguishing them from traditional defined benefit pension plans is that a segregated savings account is set up for each participating employee, the size of which is determined directly by the amount of employee and employer contributions and the interest earned by the account. Thus, employees leaving an employer will take along the value of this savings account, and will be given considerable discretion about the kinds of uses that may be made of it. Such a provision in the Federal government retirement system would not necessarily increase the normal cost of the system, but it could change the timing of budget outlays. (See Appendix B for a discussion of this point).

It should be recognized, however, that the provision of such employee flexibility could take place within the context of defined benefit plans. Under these plans, employers build up reserves for employees during their work careers. Defined benefit plans could be designed to permit employees to withdraw part of this reserve under certain conditions, thereby increasing current income but reducing the benefits available at retirement.

G. ANCILLARY BENEFITS

Retirement system design usually emphasizes the benefits payable to full career workers who retire and can draw immediate benefits because they have met the age and service requirements. A complete retirement system, however, also includes benefits for individuals who leave the workforce before full retirement, either voluntarily with vested rights to take other employment, or because of death or disability. (Chapter 4 of this study includes a comprehensive description of disability and survivor benefits.)

These vested, disability, and survivor benefits, called ancillary benefits in this study, account for a substantial part of the cost of retirement systems—whether in the private sector, in State governments, or in the Federal government. Together, they cost about 5 percent of pay—or one-sixth of the cost of the current CSRS.

The social insurance philosophy of social security is extended to the ancillary benefits as well as primary benefits. In general, the social security benefits are provided to dependent members of families of disabled or deceased workers. These benefits reflect the way the social security formula works, and thus, provide relatively higher benefits to dependents of lower income workers, including those with short service.

Private sector and State government retirement systems include ancillary provisions that supplement social security coverage. The current CSRS has, over the years, developed provisions for disability and survivors benefits necessary to meet some of the social insurance needs provided by social security in other types of employment. Private sector practices diverge sharply from the current CSRS. The social security system provides disability and survivor benefits that are financed as part of the entire system; individual recipients do not pay extra for these benefits, which instead are paid for by all covered workers and their employers.

In contrast, private sector coverage that supplements social security benefits for disability and death often is financed outside the overall retirement system. For example, companies provide life insurance and disability insurance through insurance policies that are paid for by the company, but not as part of the retirement system. (Hay-Huggins has estimated that these private sector programs are worth about 1 percent of payroll.) On the other hand, post-retirement survivor benefits are offered in the private sector to retiring employees only if they, in effect, are willing to pay for them by accepting a cut in their basic retirement benefit. Thus, postretirement survivor benefits are made available at the retiring employee's discretion, but at no extra cost to the sponsoring employer.

The current CSRS takes the middle road. It pays for most benefits as part of the overall plan, and requires reductions (but not full actuarial reductions) to pay for postretirement survivor benefits.

1. Vested benefits

The current CSRS concept of the vesting and portability of benefits differs greatly from that of social security. The social security system is designed for employees who complete a working career having had one or a number of employers. By including the service from each job, a full social security retirement benefit is available at age 65 (or a reduced benefit at age 62). Under the current CSRS, on the other hand, only the retirement benefit earned during Federal employment is considered for payment of CSRS benefits. This inhibits the movement of Federal employees to jobs outside the government, and it reduces the value of vested benefits if employees do leave Federal employment—particularly early in their career. The general design of the vesting provision in the CSRS is similar to that of a private sector pension plan. If an employee works beyond the vesting period, 5 years for CSRS and 10 years for most private sector plans, then the benefit is payable at the normal retirement age—age 62 for CSRS and age 62 or 65 for private sector retirement. However, unlike the private sector practice where, by the Employee Retirement Income Security Act of 1974 (ERISA) rules, employer contributions must be vested with the employee, the CSRS employees can divest themselves of the employer contribution through a return of their own contribution. Even though interest is not credited on these contributions (interest is required in the private sector) most employees remove this contribution and thereby lose the vested benefit.

2. Disability benefits

Disability benefits are available to workers who are not able to continue working because of a disabling condition. For the most part the disability does not result from an injury or accident suffered on the job; such disabilities are covered instead by Federal and State programs for workers' compensation.

Benefit eligibility and amounts for disabling conditions or long-term illness differ substantially in private sector and the State government retirement systems. Generally, private sector plans provide salary continuation for short-term disability with an orderly transition from short- to long-term disability benefits. The current CSRS has no provisions for integrating long-term disability benefits with accumulated sick leave that provides short-term protection.

Initial benefits in private sector and State government plans for intermediate and long-term disability are often more generous than those provided by the current CSRS. It is usually much harder to qualify for private sector long-term benefits, however. Such benefits deteriorate over time because they are not fully adjusted for inflation.

Disability may strike at any time in a work career and because of this, the differences between the current CSRS and a new Federal system may be more readily apparent than would differences in retirement benefits. The vast majority of Federal workers covered by a new system will not retire for many years, but disability benefits under the new system would begin to be paid shortly after implementation—as new workers become disabled—and could affect many workers quickly. Thus, advantages and disadvantages of the new system compared to the one governing fellow workers hired before 1984 might be readily apparent to both old and new workers.

Many design choices concerning disability retirement benefits involve trade-offs. When the current CSRS disability retirement system is compared to practices in other systems, it is apparent that provision for more adequate benefits, but with stricter eligility requirements, would be a possible trade-off.

The study recognizes that disability benefits will have to be changed significantly just to accommodate social security coverage. Private sector disability insurance, when coupled with social security, typically provides 60 percent or more of pay; compared to replacement income under the CSRS which in most instances is 40 percent of pay. On the other hand, fewer employees receive the long-term benefits because of a stricter definition of disability.

A new disability system that provides a higher benefit but restricts the definition could be introduced for the same approximate cost as the current CSRS disability system. One variation considered would be to permit a disability eligibility condition similar to the current CSRS (inability to perform current occupation) for a period of 6 months to 2 years.

Two other important and related considerations in the design of the disability benefit are the minimum benefit provided and the offset for social security. Because employees can become disabled early in the career, and because they generally have little or no other supplementary income, it has become accepted to provide a high level of replacement income quickly. Also, when disability is paid through a long-term disability (LTD) insurance arrangement, which is typical for salaried employees, the social security offset is usually applied fully to the benefit paid by the current employer. Thus, the typical private sector design for salaried employees is to provide a percentage of pay minus the full social security benefit. Variations on these options are considered in Chapter 4-III.

3. Survivor benefits

Surviving spouses of Federal workers, and retirees covered by social security plus a new integrated pension system, may be eligible for benefits that could be substantially smaller than those of the current CSRS. By definition, integrated pension systems assume that social security benefits are payable, and therefore reduce pension benefits to account for that income. However, some widows or widowers of covered workers are not eligible for social security benefits because they are too young, or have no young child, or earn too much. In such cases, the survivor's pension amount, calculated on the assumption that it was a supplement to social security, could be less than the benefit available under the current CSRS. When social security survivor benefits actually are payable, the total benefits from the old and the new program would be more comparable.

In contrast to private pension plans or many State plans, the current CSRS does not require retirees to accept a full actuarial reduction to pay for spouse survivor coverage. Private plans pay at least 50 percent of the actuarially-reduced pension, whereas CSRS pays 55 percent of the unreduced amount. According to estimates made by Hay-Huggins, at the current time CSRS subsidizes about one-half the cost of this spouse protection.

The private sector and the current CSRS differ markedly regarding benefits to survivors of workers who die before retirement. Life insurance available under the Federal system is smaller and, in some cases, much smaller, than that available under most private group plans. Most private employers provide insurance equal to two times pay at no cost to the employee; whereas, the Federal system requires that the employee pay about two-thirds the cost. In addition, Federal life insurance pays one times pay (two times if the employee is under age 36). Under the current system, annuities to the survivors of younger workers who die while still employed can be quite small, equaling about 22 percent of final pay.

The survivor benefit discussion in Chapter 4-IV incorporates a review of the full range of survivor options from the current CSRS to the private sector. A new Federal system can incorporate any number of "actuarial equivalent" options that do not involve any additional costs to the employer. The new system could provide the same minimum benefit for vested employees that is now required for private sector plans. If an employee elected this survivor option, the benefit assumes the vested employee would have retired the day before he or she died.

One consideration is the appropriate level of benefit. Private sector plans design a benefit as though the employee were receiving social security and then pay a portion of that benefit to the widow or widower. Since the receipt of social security benefits by the widow or widower is not necessarily coterminous with the benefit to the retiree, however, this can create a perceived inequity in some cases.

A second consideration is the share of the cost of any postretirement option between the retiree and the government. The private sector generally requires actuarial equivalence so that the employees pay the full cost of the benefit. Social security provides an entitlement that requires no election or cost on behalf of the retiree. CSRS falls between these two approaches by requiring an election and a payment, but the cost to the retiree is less than the full actuarial equivalent. Thus, the employee and the government both share in the cost of the current system. Chapter 4-IV examines the options available in this area from a full actuarial reduction to a full entitlement.

A final important consideration is the definition of a dependent. Clearly, the current spouse at the time of death should be considered a surviving dependent and be entitled to a benefit. Children of deceased employees or retirees under the current CSRS are paid similar benefits under social security, and therefore, the social security children's benefit would not necessarily have to be supplemented.

One type of dependent entitled to a social security benefit but not under the CSRS system or the private sector system is the dependent of a living retiree. It is assumed that a supplemental system will also not pay benefits to dependents.

A final important question is the entitlement of a divorced spouse. Chapter 4 examines the various divorce situations that can occur, including a divorced surviving spouse and a divorced spouse of a current living retiree. The various methods of providing benefits to these divorcees are examined.

VII. Five Illustrative Plans for a New Federal Retirement System

After analyzing changes in program features, five illustrative plans for a new Federal retirement system were developed. (These five plans are discussed at length in Chapter 5.) No attempt was made to develop "most likely," or "most feasible" retirement systems. The ones shown here illustrate the range of possibilities, highlighting the analysis of specific design issues in the context of a complete retirement system.

The vesting, disability and survivor components of the five illustrative plans are held constant so that emphasis can be given to the retirement benefit issues. The disability plan is consistent with private sector practices. It is slightly more generous than the current CSRS, but with a more restricted definition of disability after two years. The survivor benefits are consistent with private sector practice and closely replicate the current CSRS.

The accrual rates for the five plans have been calibrated to achieve employer costs comparable to the cost to the government of the current CSRS. The CRS estimate of entry-age normal cost to the government as CSRS employer is used as the basic cost for each of the illustrative plans. (In each case, cost to the government as employer is set at the current CSRS employer cost of 25.2 percent of pay—32.2 percent cost of benefits minus 7 percent employee contributions.) The amount employees pay for retirement system benefits is an important variable, and the plans assume different levels of employee contributions. Three of the systems include capital accumulation plans in which employees decide how much to contribute. The following table briefly describes the provisions of the five illustrative plans.

TABLE 1-3.—BASIC RETIREMENT PROVISIONS: FIVE ILLUSTRATIVE DESIGNS WITH EQUAL COSTS

Plan	Replication 100 percent offset	Replication with social security	Replication with social security and capital accumulation plan	Private sector model	Add-on model
	I	II	III	IV	V
Pension benefit formula (accrual rate)	1.78 percent × yrs	1.4 percent × yrs	1.3 percent × yrs	1.7 percent × yrs	1.2 percent × yrs.
Social security coordination	Less 100 percent of social security.	Less 50 percent of social security.	Less 50 percent of social security.	Less 50 percent of social security.	None.
Retirement with:					
Full benefits	Age 55, 30 yrs Age 60, 20 yrs Age 62, 5 yrs	Age 55, 30 yrs Age 60, 20 yrs Age 62, 5 yrs	Age 55, 30 yrs Age 60, 20 yrs Age 62, 5 yrs	Age 62, 5 yrs	Age 62, 5 yrs.
Optional benefits; partially reduced	None	None	None	Age 55, 30 yrs Age 60, 20 yrs	Age 55, 30 yrs. Age 60, 20 yrs.
(Amount of reduction)	None	None	None	3.0 percent per yr	3.0 percent per yr.
Pre-age 62 supplement	Yes	Yes	Yes	No	No.
Postretirement adjustments	Full	Full	Full	50 percent CPI	50 percent CPI.
Mandatory employee contributions to pensions	7 Percent[1]	None	None	None	None.
Capital accumulation plan	None	None	50 percent match of employee contributions to 6 percent of pay.	100 percent match of employee contributions to 6 percent of pay.	100 percent match of employee contributions to 6 percent of pay.

[1] In 1984, 1.3 percent plus 5.7 percent social security and medicare tax on the social security maximum wage base, 7 percent above that base.

TABLE 1-3.—Continued

PROVISIONS COMMON TO ALL PLANS

Vesting

Retirement: 5 years.
Capital accumulation: Immediate.

Disability

Definition: First 24 months, unable to perform in position; after 24 months, totally and permanently disabled for any occupation (social security definition).

Amount: 60 percent of pay minus social security, or accrued retirement benefit, whichever is greater.

Survivor benefits

Preretirement death: 55 percent of accrued retirement benefits.

Postretirement death: If elected, causes a reduction in the retirement annuity of 2.5 percent of first $3,600 annually; plus 10 percent on amounts over $3,600; survivor benefit is 55 percent of annuity before reduction.

Service requirement

Immediate retirement: 10 years at age 55 with full actuarial reduction.
Deferred benefit: 5 years, payable beginning at age 62.

Plan I is a 100 percent offset plan and was chosen because it most closely matches the current CSRS benefit distribution across income classes. All provisions of the current CSRS except disability benefits are retained. Costs are held constant with the current system and employees contribute 7 percent of pay minus the social security tax.

Plan II, a 50 percent offset plan, is representative of many private sector pensions, although costs to the government as employer are shown here to match those of the current CSRS. There are no employee contributions except social security taxes.

Plan III modifies Plan II by lowering the accrual rate sufficiently to provide for a capital accumulation plan, but maintaining the same total cost to the government. Under this voluntary plan, the government, as employer, matches 50 percent of the employee contributions up to 6 percent of pay.

Plan IV is also a 50 percent offset plan, but it has been changed to resemble closely typical private sector practices and accommodates a more liberal capital accumulation plan. Early retirement reductions of 3 percent for each year of retirement before age 62 are applied, and the COLA is lowered to one-half of the CPI rate. Savings from these changes were used to increase the accrual rate and to add a generous capital accumulation plan that matches each employee dollar with a dollar from the employer, up to 6 percent of pay.

Plan V is an add-on plan, and was selected because it illustrates distributions common in State government pensions and the military retirement system that do not attempt to counteract the tilt in the social security benefit formula favoring low income workers. Plan V includes the same early retirement reductions of 3 percent per year and one-half COLA as Plan IV, with the savings similarly used to increase the basic benefit to provide a generous capital accumulation plan.

Figure 1–7 displays these plans side-by-side, for workers retiring at a final salary of $30,000 with 30 years of service at three different ages. In Plans I, II, and III, supplements equal to the anticipated social security benefit payable at age 62 would be paid at age 55. Plans IV and V have no pre-age 62 supplement and show pension benefits 15 percent lower at age 55 for the same number of years of service. At age 67, when social security reductions would no longer apply, all plans would show substatially higher initial benefits.

FIGURE 1-7.—Comparison of Five Illustrative Plans at Constant Employer Cost: Gross Replacement Rates for a Single Worker with 30 Years of Service—$30,000 Final Salary.

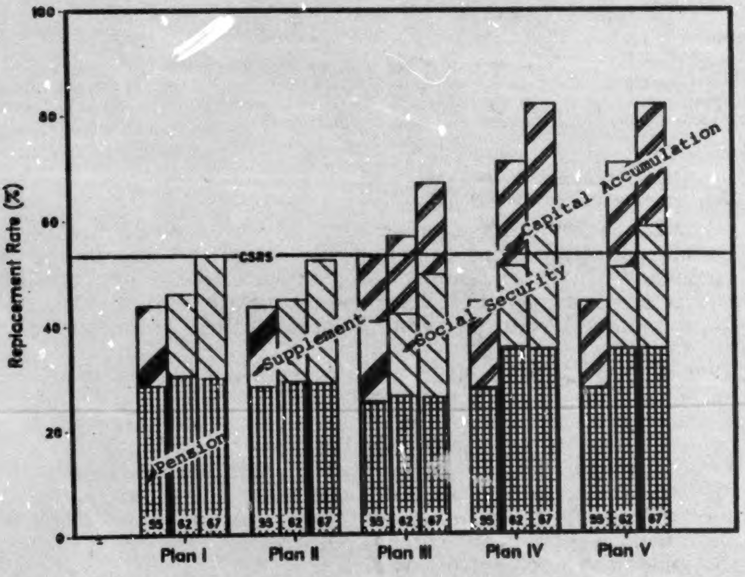


Figure 1-8 also compares the plans' distribution by income. Plan I, a 100 percent offset plan, actually distributes total benefits upward through the salary scale. The offset is applied at age 62 when social security benefits begin, but the social security formula computes full benefits payable at age 67 and then reduces them for early retirement. The effect of the reduction is more pronounced at lower salaries because social security provides a larger share of the total benefit for lower salaried levels compared to high. Under Plan I, the total gross replacement rates would be constant across the wage scale for retirees first receiving their benefits at age 67 when the social security reductions would not apply.

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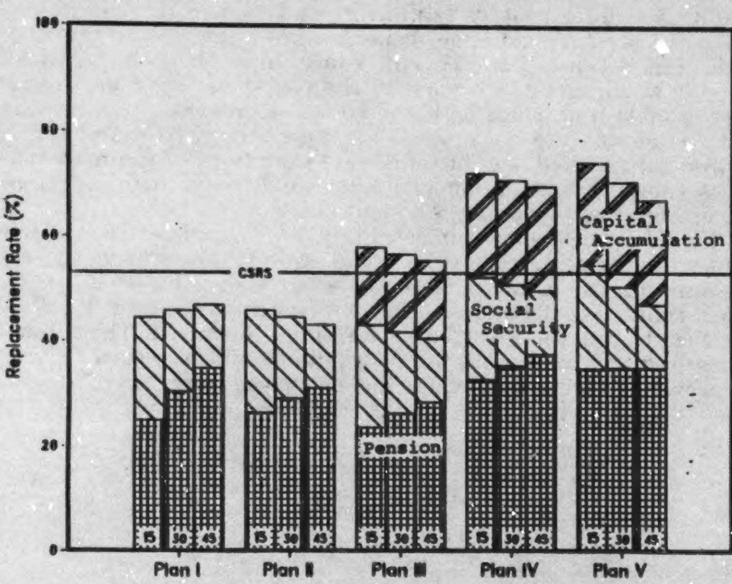
FIGURE 1-8.—Comparison of Five Illustrative Plans—Gross Replacement Rates for a Single Worker Age 62 with 30 Years Service.



Plan II has the same cost to the Federal government as Plan I, but because employees pay only social security taxes and do not contribute to the plan, the benefits of Plan II are somewhat lower than Plan I. (Plan I requires a total contribution (social security plus pension contribution) of 7 percent, equal to the current CSRS.) Plan II is a 50 percent offset plan, and by not offsetting the social security tilt entirely, distributes more in total benefits to lower incomes. This income distribution tilt would be more pronounced for retirement at age 67, when the social security early retirement reductions are not applied.

Plan III is a 50 percent offset plan, but also has a capital accumulation plan to which employees may contribute up to 6 percent of their salaries and receive an employer match of one-half of that amount. The distribution across the salary scale of Plan III is uncertain because total benefits based on the government's share of the costs depend upon each employee's participation in the capital accumulation plan. Employees who do not participate in the capital accumulation plan would receive less than in Plan II, but by participating, employee retirement income can be higher than in Plan II. Full participation during the entire career would yield replacement rates that at all salary levels would exceed those of the current CSRS. While working, employees would be contributing a greater share of their incomes for these retirement benefits.

Plans IV and V have early retirement reductions of 3 percent per each year under age 62. Accordingly, workers retiring at age 55 would have lower benefits than in Plans I, II, and III. Workers retiring at age 62 receive larger benefits at retirement than the other plans, but because plans IV and V also have 50 percent COLAs, benefits would erode in value over the years after retirement. Benefits payable from plans I, II, and III, are increased by the amount of inflation and are not eroded over time. The savings from early retirement and COLA reductions were used to pay for a more generous capital accumulation plan that would yield high initial replacement rates to workers who participate.

Plan IV is a 50 percent offset; Plan V is an add-on. The pension values are the same across the salary scale for the add-on, thereby maintaining completely the social security distributional tilt for total benefit distributions. The 50 percent offset in Plan IV matches the income distribution of plans II and III. These offset plans partially counteract the distributional tilt of scocial security by providing higher pensions to higher income workers.

CHAPTER 2: PRIVATE SECTOR AND STATE GOVERNMENT RETIREMENT SYSTEMS

I. INTRODUCTION

There are over 800,000 private sector and over 50 State government pension plans. While there is wide variety in pension plan design, there is sufficient uniformity to enable development of illustrative or "representative" plans to be used for comparison to the current civil service retirement system, and to guide the analysis of options for a new Federal system.

Private sector organizations and State governments have had 50 years of experience designing and operating pension systems that are built upon social security and that complement this basic social insurance system. State government coordination techniques differ somewhat from private companies, in part because most States had pension systems for their employees already in place when social security coverage was extended to State government employees effective in 1951. The majority of State pension systems compute benefits without regard to social security benefits, and State employees usually must not only pay social security taxes but also must make contributions to their pension system. On the other hand, most private companies established their present pension plans after social security was enacted. Most of these have retirement benefit formulas "integrated" with social security. Few participants in private pension plans are required to contribute to them.

The features emphasized in these private sector and State government representative plans developed by CRS, determine under what conditions people are eligible for benefits and how much they receive. Specifically, these features define:

—conditions for eligibility (vesting),
—when benefit payments can begin,
—the amount of benefits, and
—postretirement inflation adjustment to benefits.

Single Federal statutes define the features of the social security system and the civil service retirement system, but Federal law only establishes minimum standards for private pension plans. The number of private pension plans consist of varied combinations of design features. Most pension plans are established by a single firm to cover its employees. Some plans are negotiated under a collective bargaining agreement, while others are established solely at the employer's initiative.

This section summarizes the scope, composition, and features of private sector and State retirement systems. They may be considered a multilayered combination of social security, a pension plan, and in many cases, a supplemental capital accumulation plan.

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About one-half the private sector workforce is not covered by a company-sponsored pension plan and may ultimately have to rely on social security and personal savings. These persons are usually employed by small companies.

Analysis of available data bases provided comprehensive information on private and State pension plans and enable us to construct four representative examples of typical non-Federal pension plans, to be compared with the current CSRS. Although very few pension plans are exactly alike, these constructed plans contain features commonly found in the non-Federal sector, and represent benefits provided to large numbers of *salaried* employees (i.e., white collar employees).

II. PRIVATE SECTOR RETIREMENT SYSTEMS

Private pension plans originated in 1875 when the American Express Company established a system for retiring, at company officials' discretion, permanently incapacitated workers at least 60 years old who had worked at least 20 years. (Murray Webb Latimer, Industrial Pension Systems, New York: Industrial Relations Counselors, 1931, Vol. 1, pp. 20–24.) In the early 1900s, a number of rapidly growing corporations—principally railroads, utilities and steel—established retirement plans. Private sector pensions, predating the emergence of social security in the United States, evolved from two kinds of arrangements.

A. EMPLOYEE-SPONSORED PENSIONS

Partly out of response to the deficiency of employer-sponsored pensions, employee organizations with a tradition of collective self-help developed pension arrangements for workers whose allegiance to an occupation was more pronounced than to any particular employer. Early railroad worker associations supported both employer and employee sponsored pensions and counted provision of group insurance and old age assistance among their primary reasons for existence.

Employee-sponsored pensions were often successful in providing benefits to workers who stayed within the same type of employment but who worked for more than one employer; however, the method of financing these arrangements frequently caused problems. Most were financed through ad hoc transfers—contributions collected from workers to support current retirees. In the early years, the ratio of workers to retirees was favorable, and benefit payments were easily affordable. In such a system, as the number of retirees increases, either the number of workers must also increase or the amounts contributed by each worker can become unacceptably high.

B. EMPLOYER-SPONSORED PENSIONS

Although many employers had long maintained income arrangements for old or infirm employees, the primary force contributing to the development of employer-sponsored pensions was competition for employees. Pensions could attract employees and encourage them to remain and retention of experienced employees had competitive advantages. Employees whose age or infirmities caused their productive capabilities to fall below their salaries could be removed in an orderly and humane fashion.

During the early years of the pension movement, employers had sole discretion over the payment of benefits. Thus, employees could be discouraged from leaving because of the forfeiture of pension rights. Company control over pension payments also meant that benefits were not necessarily secure. Employers undergoing financial strain could and did cut back or eliminate pensions when the funds necessary for their payment were not available.

In the 1940s, and 1950s the number of employer-sponsored private pension plans grew rapidly, stimulated by the following factors:

1. Government wage and price controls during World War II that prompted employers to offer and unions to seek retirement benefits as a means of retaining and compensating workers for increased efforts without contributing to inflation;
2. A 1947 Supreme Court decision that upheld a National Labor Relations Board ruling requiring employers to bargain in good faith over the terms of pension plans; and
3. A 1949 steel industry determination that pensions are an appropriate industry responsibility.

The following table shows that the number of private employer-sponsored pension plans has grown from under 1,000 in 1939, to over 800,000 plans. Private pension plan assets now total over $900 billion.

Table 2-1.—Private Employer-Sponsored Pension Plans

Year:	Plans in effect
1939	659
1954	24,879
1964	102,626
1974	423,482
1983	803,952

Source: Employee Benefit Research Institute.

The majority of pension plan participants work for companies with large pension plans. Two percent of all plans cover 75 percent of all participants. About three out of every four participants are covered by plans with 1,000 or more participants. Forty-five percent of all participants are in very large plans with 10,000 or more participants.

C. SOURCES OF DATA FOR PRIVATE SECTOR SYSTEMS

The major features of private pension systems were identified by analyzing the following data sources:

1. Bureau of Labor Statistics (BLS) 1982 survey of employee benefits (data from a sample of 1,500 establishments with employment representative of 21 million workers);
2. Hay-Huggins 1983 Noncash Compensation Comparison (data on 854 financial, service, and industrial companies);

3. Bankers Trust Company 1980 Corporate Pension Plan Study (data on 325 company pension plans covering 8.2 million workers);[*]
4. Wyatt Company 1982 survey of retirement, thrift and profit-sharing plans (data on salaried employees of 50 very large U.S. industrial companies); and
5. Hewitt Company 1982 comparison study of salaried employee benefits provided by 659 major U.S. employers.

These data sources were supplemented by (1) a 1983 study of inflation and pension benefits prepared by researchers at the North Carolina State University, (2) the American Society of Pension Actuaries (ASPA) survey of small- and medium-size firms, (3) the Conference Board 1981 Profile of Employee Benefits, and (4) discussions and consultations with pension experts.

These data sources supported a comprehensive description of private sector pension systems. In total the data (1) are broadly based and cover small-, medium-, and large-size companies; and (2) showed that pension plan characteristics did not vary significantly among the different sources. Variances could generally be explained by the nature of the data base and the types of plans included or not included (e.g., some data sources were principally limited to plans for salaried employees while other data sources also included plans for hourly wage workers).

Unless noted otherwise, the BLS figures are a percent of *participants,* while the figures from the other sources are a percent of *plans.*

The remainder of this chapter discusses features of private sector pension systems, as revealed by the sources of data listed above. In discussions of particular features, one or more data sources may be omitted if the source did not include information on the particular feature being considered.

D. FEATURES OF PRIVATE SECTOR PENSION SYSTEMS

1. How eligibility is established

When an organization establishes a pension plan, it must decide who is eligible to participate and how long a participant must work in order to be entitled to a pension. A single employer plan may cover all of the employees of the company, or it may be limited to only part of them. Some companies establish several different plans to cover different groups of employees. For example, separate plans might be established for salaried employees, hourly paid employees, or employees covered under a particular collective bargaining agreement. In multiemployer pension plans, many employers participate in the same plan. All employees for whom contributions are made under the collective bargaining agreement usually are covered.

Before the passage of the Employee Retirement Income Security Act of 1974 (ERISA), companies had broad discretion in establishing plan eligibility. ERISA established minimum standards, however. It defined participation requirements and the length of service required for pension eligibility (vesting requirements).

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[*] While the Bankers Trust survey includes separate data on both salary related plans (referred to in their study as "conventional plans") and dollar benefit plans (referred to in their study as "pattern plans"), only data on salaried workers are presented in this report.

a. Participation requirements.—At the time of our survey, most plans in the data bases examined had participation requirements more liberal than the minimums imposed by ERISA. Plans could not require an employee to complete more than one year of service or attain an age greater than 25 as a condition of participation in the plan. With the recent passage of the Retirement Equity Act of 1984, pension plans must now include workers either age 21, or who have completed one year of service, whichever comes later.[7] Participation in the civil service retirement system (CSRS) is immediate.

TABLE 2-2.—PERIOD OF SERVICE REQUIRED FOR PARTICIPATION IN PENSION PLAN

[In percent]

	BLS	Bankers Trust	Hay
ERISA minimum standard at time of survey	30	30	43
More liberal than ERISA at time of survey	70	70	57

Note.—BLS figures are percent of participants. Other data sources are percent of plans.

Some defined benefit plans exclude employees hired after a maximum age. ERISA states that the maximum age cannot be more than five years before the normal retirement age. Thus, a plan with a normal retirement age of 65 may exclude employees hired after age 60.

b. Vesting requirements.—ERISA contains three vesting schedules from which employers may choose. Sometimes the Internal Revenue Service, which also regulates private pensions, may require faster vesting. In order to continue to qualify for special tax treatment certain plans, especially those of small companies may be required to grant vesting at a faster rate by IRS regulations. "Vesting" refers to a worker's having earned the right to a retirement benefit from a plan, even if he or she does not continue to work under the plan.

Table 2-3 shows that a large majority of private pension plan participants must have 10 years of covered service before they are entitled to a pension upon reaching retirement age. Smaller plans that are represented in the American Society of Pension Actuaries survey tend to have shorter vesting periods than larger plans. The current CSRS vests with five years of service, but gives a more limited vested right than do private plans. In CSRS, deferred benefits depend upon employees not withdrawing their contributions to the system upon resignation.

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[7] If a plan provides full and immediate vesting for all participants, it can require employees to be age 21 with three years of service in order to participate.

TABLE 2-3.—PERIOD OF SERVICE REQUIRED FOR VESTING

[In percent]

	BLS	Bankers Trust	Hay	Wyatt	Hewitt	ASPA
10 years	88	90	70	80	81	16
Other	12	10	30	20	19	84

Note.—BLS figures are percent of participants. Other data sources are a percent of plans.

Federal workers have a nonforfeitable, vested right only to their own contributions. Workers with five or more year's service who withdraw their pension contributions upon leaving Federal employment, forfeit all benefits derived from employer contributions, and receive no interest on their own payments.[9] ERISA prohibits this practice in private pension plans. While most private sector pension plans are noncontributory, vested employees who withdraw their own contributions when they leave their jobs do not lose retirement benefits based on employer contributions, nor do they lose interest earned on any payments they may have made to the plan.

2. *How benefits are earned*

In adopting a pension plan an employer may choose a *defined benefit* plan, a *defined contribution* plan, or both. Each plan has certain advantages and disadvantages to both the employer and the employee. Decisions must also be made on what age employees may retire with full benefits, how benefits will be affected by early or postponed retirement, and how large a benefit will be earned for each year of service.

a. Defined benefit vs. defined contribution.—A defined benefit plan provides a retirement benefit formula for computing the actual amount of the pension based on such factors as salary and years of service. For example, a defined benefit plan may provide a monthly pension at age 65 equal to $15 multiplied by the participant's years of service. This is referred to as a "dollar benefit" plan. Another defined benefit plan may provide a monthly pension equal to one percent of average pay during the last five years of employment, multiplied by his years of service. This is referred to as an "earnings-related" plan. An employer establishes a tax-exempt trust fund into which contributions are made in amounts estimated to be sufficient to provide the plan's benefits. Most defined benefit plans are insured through premiums paid by ongoing plans to the Pension Benefit Guaranty Corporation (PBGC), a nonprofit government corporation. Because defined benefit plans are essentially a "promise to pay," they are subject to funding and other standards that do not apply to defined contribution plans. Defined benefit plans specify benefit conditions and amounts that can be altered to meet the pension objectives of an employer. Liberalizations to the benefit formula can easily apply to all past service. Benefits can also be tied directly to preretirement earnings—an important measure of adequacy. Benefits are predictable, and employees easily understand the concept if not the actual operation of the formula. Plan administrators have little difficulty specifying the accrued benefit values and expected benefits at retirement. Employees are therefore in a position to plan rationally and confidently for their retirement income.

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[9] Employees who leave the Federal workforce after working one year but fewer than five (before vesting) receive back their own CSRS contribution plus interest.

A defined contribution plan is essentially a saving plan; it provides a specific employer contribution to each participant's individual account, such as 10 percent of pay. Each account is also credited with its share of pension fund investment return, including any increases and decreases in the market value of investments. The pension at retirement is based on what can be purchased with the amount accumulated in the individual's account. It may be paid in a lump sum or a series of installments over a period of years until the account is exhausted. The advantage of a defined contribution plan to employers is that they know exactly what the pension obligation is and, by the very nature of the plan, the benefits are fully funded at the time the contribution is made. The employee bears the risk of variable market performance—benefitting from favorable markets and losing from unfavorable markets. As a result, the ultimate benefit to be received cannot be prescribed with certainty.

Either a defined benefit or a defined contribution plan (or both) could be adopted for employees of the Federal Government. Seventy-two percent of the plans in the private sector are defined contribution plans, but 69 percent of plan participants are in defined benefit plans. Defined contribution plans are more common to small employers and defined benefit plans are more prevalent for employers with many employees.

The structure of defined contribution plans departs from the current civil service retirement system and from the prevailing practice of large non-Federal employers. In recent years, however, defined contribution plans have often been offered in combination with a basic defined benefit plan.

b. Years of service and age.—Pension plans must specify conditions under which participants can begin to receive benefits. Aside from the onset of disability or death, to be discussed later, these conditions are usually a combination of age and years of work. For example, the current civil service retirement system requires workers to be at least age 55 with 30 years of service for "unreduced" benefits to begin.

(1) *Normal retirement age.*—ERISA requires a "normal" retirement age of no older than age 65. This typically refers to the age when an employee is expected to retire and is eligible for an unreduced pension. Many plans have liberalized their early retirement provisions to provide unreduced pensions before normal retirement, but they still classify age 65 as normal retirement age. As a result, the concept of normal retirement age has lost some of its significance.

(2) *Unreduced benefits.*—The majority of plans in this study's data bases, except for the Hay-Huggins survey, permit retirement at age 62 or earlier, with unreduced benefits. At age 62, plans usually require 10 years of service. The BLS data base shows that about one in five workers may retire with full benefits at age 55 or earlier provided they have 30 years' service.

TABLE 2-4.—EARLIEST RETIREMENT AGE WITH UNREDUCED BENEFITS

[In percent]

	BLS	Hewitt	Hay	Wyatt
Age 62 or earlier	53	57	41	94
Age 55 and 30 years' service	23	6	5	22

Note.—BLS figures are percent of participants. Other data sources are percent of plans.

The current civil service retirement system has been criticized for its early retirement practices—allowing receipt of unreduced benefits at age 55 with 30 years of service.[9] Early retirement is one of two primary reasons why CSRS benefits cost more than a typical private pension plan. The other reason is automatic adjustments of benefits for price inflation. (See the cost analysis section of chapter 3.)

(3) *Early retirement with reduced benefits.*—Early retirement age in this study is defined as the earliest time a participant may retire and begin receiving *reduced* retirement benefits. Benefits are usually reduced because they are payable over a longer period of time. The following table shows that close to nine out of ten employees are in plans permitting retirement as early as age 55, but with reduced benefits.

Table 2-5.—Permitted Retirement at Age 55 With Reduced Benefits

	Percent
BLS	86
Bankers Trust	93
Hay	93
Wyatt	92
Hewitt	96
ASPA	90

NOTE.—BLS figures are percent of participants. Other data sources are percent of plans.

(4) *Early retirement reduction.*—For workers choosing to retire early, the first step is to calculate the benefits payable at normal retirement age based on service to date. This amount is usually then reduced by a certain percentage for each year the retiree is under the age for unreduced benefits (usually 62). This reflects the longer payment period. The normal retirement benefit is either adjusted to reflect the life expectancy of the individual at the age that pension benefits begin (actuarial reduction), or reduced by a percentage for each year between actual retirement and normal retirement age (arithmetic reduction). It is possible to reduce benefits so that the total benefit stream would be actuarially equivalent, and accordingly, whether the employee retired early or did not, would not affect the cost to the plan. Full actuarial reduction would require reduced payments of about six or seven percent per year. However, private pension plans often reduce employees' accrued pension benefits, by about four or five percent a year if they retire early. (See page 234 for a discussion of how the CRS early retirement reduction was derived.)

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[9] There are occasions where reduction factors do apply to civil service retirement benefits. For instance, workers who are "involuntarily" separated from their agencies (for example, during major reductions-in-force (RIF)) may qualify for reduced benefits.

Table 2-6 shows the percent of the full accrued benefit payable to employees retiring at age 60 and at age 55. Overall, someone could retire at age 60 and receive between 80 and 96 percent of his full benefit, or retire at age 55 and receive between 55 and 77 percent. For example, workers entitled to a $1,000 monthly benefit at age 65 would receive a reduced early retirement benefit ranging from about $550 to $770 if retirement came at age 55.

TABLE 2-6.—PERCENT OF EARNED BENEFIT RECEIVED AT DIFFERENT RETIREMENT AGES [1]

[In percent]

	Bankers Trust	Hay	Wyatt	Conference Board
At age 60	92	80	96	80
At age 55	69	55	77	55

[1] Some plans make full actuarial reductions for early retirement whereas others reduce the accrued benefit by a certain percentage per year. The majority of the plans in the Hay-Huggins data base provide 80 percent or more of the full accrued pension at 60, and 55 percent or more at age 55. The percentage shown for the Conference Board and Bankers Trust reflect the median percent payable at each age; the Wyatt figure represents the average percent of the full accrued benefit payable at each age.

Early retirement provisions are more favorable to employees of very large plans. For instance, workers can retire from the top 50 salaried plans shown in the Wyatt Company data base and receive 96 percent of their accrued benefit at age 60, and 77 percent at age 55—less than a three percent reduction per year below age 65.

It should be noted that while pensions are usually reduced for early retirement, plans sometimes offer supplements until the retiree begins receiving social security benefits at age 62. This can be done in several ways. The Bankers Trust survey notes that early retirement benefits are increased for certain plans that reduce the pension by a certain percent of the retiree's social security benefit. One-half of the plans do not apply the social security offset before age 62, or the start of social security, when determining early retirement benefits. (The other half would estimate the social security benefit and offset a percentage of this amount. This will be discussed in detail later.)

(5) *Postponed retirement.*—There is no mandatory retirement age in the Federal Government. Regardless of their age, Federal workers may accrue pension benefits until they reach 80 percent of their high-3 average salary, which occurs after about 42 years. While the 1978 Age Discrimination in Employment Act (ADEA) Amendments do not permit mandatory retirement in the private sector earlier than age 70, defined benefit plans do not have to provide additional pension credit for service performed after age 65 (i.e., the normal retirement age specified in ERISA).[10]

According to the BLS, 58 percent of private sector workers are in plans providing no pension credit if they continue working after age 65. Even so, a significant number of plans do provide some or full pension credit for service after age 65—particularly very large employers. Some companies adjust benefits upward actuarially because of the shorter payout period; more often, if benefits are increased companies take salary and/or service earned after age 65 into consideration in computing the benefits. The following table shows the extent to which credit is given for post-65 service.

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[10] Current law requires that an active participant in a defined contribution plan must continue to receive an allocation of company contributions in spite of any attained age, whether beyond the plan's normal retirement age or not.

TABLE 2-7.—CREDIT GIVEN FOR POST-65 SERVICE

[In percent]

	BLS	Bankers Trust	Hay	Hewitt	Wyatt
No credit	[1] 58	65	[1] 70	62	38
Some or full credit	42	35	30	38	62

[1] For six percent (14 percent of Hay survey) of those workers who receive no credit in the pension formula for service after age 65, pensions are increased to reflect the shorter payout period. Another one percent (two percent of Hay survey) of such workers begin receiving their pension at age 65. Similar statistics for the other data bases are not known.

Note.—BLS figures are percent of participants. Other data sources are percent of plans.

c. *Accrual rates.*—Accrual rates, the major feature of pension plan benefit formulas, determine the amount of benefit earned for each year of service. These rates always establish the amount of benefits earned, but techniques for applying them vary from company to company. For example, about one-third of all participants are in pension plans that calculate benefits by more than one formula and then pay the most generous result. Different practices confuse those who attempt to describe representative practices.

Hourly wage employees—particularly those covered by collectively bargained plans—usually earn (accrue) a monthly dollar benefit, say $10, for each year of service. In this example, an employee with 30 years service would receive $300 a month, regardless of his earnings level. Salaried employees, on the other hand, usually participate in plans that pay benefits related to earnings. A plan may provide, for example, one percent of average salary for each year of service. A retiree with 30 years service and an average salary of $12,000 would also receive a pension of $300 a month. Employees with higher salaries would accrue proportionately higher dollar benefits; employees with lower salaries would accrue lower dollar benefits.

The BLS data show that about two-thirds of all participants of private sector pensions are in defined benefit plans. In fact, the vast majority of white-collar workers are in salary related plans whereas blue-collar workers are fairly evenly split between plans providing a dollar benefit for each year of service and salary-related plans. Dollar benefit plans are not suitable for organizations whose employees have a wide range of earnings. Providing the same dollar amount to all workers regardless of earnings may result in giving lower paid workers more retirement income (pension plus social security) than they received while working, while giving higher income workers substantially less income than needed to maintain their preretirement standard of living. Although the U.S. Government employs some blue-collar workers, salaried employees are more numerous in the Federal workforce. Therefore, our analysis focuses on private pension plans covering salaried employees.

d. *Compensation base.*—Pensions of about four-fifths of participants in salary-related plans are based on the average annual sum earned during the highest paid five consecutive years in the final

10 years. A shorter compensation base (such as the highest paid three years) produces higher benefits, assuming earnings have been increasing. Social security and a small number of plans apply the benefit formula to career average earnings. However, social security earnings are indexed to age 60 and career average earnings in retirement plans are often increased on an ad hoc basis. In the absence of ad hoc inflation adjustment to career average earnings, a career average compensation base produces a much lower retirement benefit than one based on some average of final years' earnings. For example, a pension based on final three years' average salary would produce a pension about twice as large as one based on average earnings over a 30-year career. The current CSRS uses the highest consecutive three years' average salary as the compensation base (i.e., "high-3").

TABLE 2–8.—COMPENSATION BASE PERIOD FOR FINAL AVERAGE SALARY PLANS

[In percent]

	BLS	Bankers Trust	Hay	Wyatt	Hewitt
3-year average	9	16	16	50	10
5-year average	87	83	80	46	76
Other	4	1	4	4	14

Note.—BLS figures are percent of participants. Other data sources are percent of plans.

3. Integration with social security

Pension plan designs take social security benefits into account in different ways. Plans with benefit formulas that offset part of social security's income redistribution tilt are "integrated." Since social security benefits are weighted, or tilted, in favor of lower paid workers (see figure 3–4 in chapter 3), integrated plans tilt the pension benefits in favor of higher paid workers. When the pension is combined with social security, overall retirement income is more nearly proportionate across the earnings scale, but still favors the lower paid. A plan will meet Internal Revenue Service requirements if the combined benefits from social security and the pension plan do not favor higher paid employees.

Other pensions plans do not integrate their benefit formulas but provide a pension amount calculated independently of social security and are called "add-on plans." They maintain the redistributive aspects of social security. (See figure 3–5 in chapter 3.)

Most of the private sector plans included in the surveys are integrated with social security. For instance, the BLS data base shows that 64 percent of employees surveyed are covered by integrated plans. Other surveys show higher percentages of integrated plans ranging from 66 percent to 96 percent.

Pension plans generally use one of two basic methods to integrate plan benefits with social security—offset or step-rate. Table 2–9 shows that the most common way of integrating benefits is the offset method. Under this method, a portion of an employee's social security benefit is deducted from benefits that would otherwise be payable under the plan's benefit formula. It may be considered an equation: A−B=C, where the pension is calculated by reducing the accrued benefit (A) by a percentage of the worker's primary social security benefit (B). The worker receives the net amount (C). For example, a plan may provide a benefit to a full-career worker of 50 percent of final average compensation reduced by 50 percent of social security benefits. The net pension benefit provided (i.e., C) will be in addition to the worker's social security benefit.

TABLE 2-9.—COORDINATION OF BENEFITS WITH SOCIAL SECURITY

[In percent]

	BLS	Bankers Trust	Hay	Wyatt	Hewitt	ASPA
Integrated	64	86	91	96	93	66
Offset method	(50)	(56)	(65)	(66)	(70)	(NA)
Step-rate method	(14)	(30)	(26)	(30)	(23)	(NA)
Not integrated: Add-on	36	14	9	4	7	34

Note.—BLS figures are a percent of participants. Other data sources are a percent of plans.

Under the step-rate method of integration, the plan benefit formula contains two different percentage factors. Workers earn a lower benefit accrual for compensation up to a specified dollar breakpoint (i.e., the integration level) and a higher benefit accrual for final average compensation above the breakpoint.

a. Offset plans.—The Bureau of Labor Statistics provided CRS with a special tabulation of the benefit formulas used by offset plans in their Survey of Employee Benefits.[11] It shows that the largest group of participants is in plans providing a benefit accrual of about 1.5 to 1.75 percent of final average salary per year of service, offset by about 1.25 to 1.67 percent of social security benefits for each year of service. For a worker with 30 years' service, this would amount to a benefit of about 45–53 percent of final average earnings reduced by about 38–50 percent of social security benefits. These observations were confirmed by analysis of the Hay-Huggins data base.

b. Step-rate plans.—Step-rate plans establish an integration breakpoint above and below which two accrual rates are applied. This added complication increases the difficulty of summarizing the benefit formulas in step-rate plans. The breakpoint used for about half the step-rate plans in the BLS data base is the average taxable wage base in effect over the worker's career. This would amount to $13,800 for someone retiring in 1985. The Hay-Huggins survey also shows that about half of the employers with step-rate plans use average social security covered wages as the breakpoint and that the rest typically use lower dollar levels.

For step-rate plans that base benefits on final average earnings and use the social security average taxable wage base as the integration breakpoint, the most prevalent formula contains an accrual rate of one percent below the breakpoint and 1.5 percent above it for each year of service.[12]

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[11] The table, which is based on 221 plans using final average earnings formulas with a single percent accrual rate for all years of service offset by a percentage of social security benefits, is included in Appendix A.

[12] See Table in Appendix A.

4. Postretirement maintenance of real benefit levels

Over time, inflation erodes pension benefit values. A fixed pension benefit amount will lose about half its value in 10 years at an annual inflation rate of seven percent. While private sector employers are not required to maintain real benefit levels, surveys show that retirees frequently receive ad hoc postretirement benefit adjustments. These pension increases usually fall short of increases in the Consumer Price Index (CPI).

a. Automatic cost-of-living adjustments (COLAs).—Private pension plans generally do not provide automatic cost-of-living adjustments (COLAs). The BLS survey shows that only three percent of pension plan participants have full and automatic inflation protection. Usually the increase is capped at about three percent. Private sector workers, however, do receive indexed social security benefits.

b. Ad hoc adjustments.—Rather than writing a "blank check" for unknown future costs, most private sector companies provide ad hoc postretirement benefit adjustments. The BLS survey shows that 38 percent of the pension plan participants received at least one ad hoc postretirement adjustment in the 1978–81 period. The Hay-Huggins survey shows that 57 percent of the firms provided at least one postretirement adjustment over the 1975–1984 period. A study by researchers at North Carolina State University shows that most retirees received at least one increase in benefits and many received substantial nominal benefit increases during the mid-1970s.

c. North Carolina State University study.—Researchers at North Carolina State University have conducted the most comprehensive assessment to date of adjustments to pension benefits in response to inflation. Their study shows that about three-fourths of all pre-1973 retirees received at least one pension increase over the 1973–79 period. One-quarter of the retirees received an increase every year.

Despite these ad hoc increases, the real value of pension benefits declined. Average pension benefits increased by 24 percent over the six-period, offsetting 38 percent of the rise in the CPI. (During this same period the CPI climbed from 133.1 in 1973 to 217.4 in 1979, an increase of about 63 percent.)

The North Carolina State study found:

—Postretirement benefit increases vary substantially by plan size. The largest plans with over 10,000 recipients increased benefits by 36.2 percent during this period, compared to less than 15 percent for plans with less than 1,000 recipients;

—Benefit increases are greater in larger and unionized firms;

—Persons who have been retired longer received larger increases; and

—Persons who have more years of service typically receive larger increases.

Postretirement benefit increases were influenced by the collective bargaining status of the plan. The study found that beneficiaries in non-union plans had fewer total increases in retirement benefits and were more likely to have received no increase during the six-year period. Table 2–10 shows that during this time, the average benefit of retirees in collectively bargained plans rose by 28.6

percent (or about 45.2 percent of the rise in the CPI) compared to 18.5 percent (or about 30 percent of the rise in the CPI) for beneficiaries in noncollectively bargained plans—the type of plan most likely to cover salaried employees in the private sector.

TABLE 2-10.—ANNUAL MEAN BENEFIT FOR PERSONS RETIRED IN 1973, BY COLLECTIVE BARGAINING STATUS OF PLAN

Year	Union			Nonunion		
	Annual mean benefit	Percent of 1973 benefit	Benefit change as a percent of CPI change	Annual mean benefit	Percent of 1973 benefit	Benefit change as a percent of CPI change
1973	$1,882	100.0		$2,558	100.0	
1974	1,987	105.6	50.9	2,591	101.3	11.8
1975	2,075	110.3	48.7	2,688	105.1	41.1
1976	2,158	114.7	69.0	2,786	108.9	62.9
1977	2,248	119.4	64.2	2,821	110.3	19.3
1978	2,319	123.2	41.6	2,999	117.2	83.0
1979	2,420	128.6	38.5	3,032	118.5	9.7
Change 1973–79	538	28.6	45.2	474	18.5	29.2
Sample Size:	99,487			39,753		

Source: Clark, Robert L., Steven G. Allen and Daniel A. Sumner. Inflation and Pension Benefits. Aug. 1983.

Plan size explains part of the difference between union and nonunion benefit increases. Union membership is concentrated in the large plans. Average benefits in collectively bargained plans with more than 10,000 recipients rose by 42.2 percent between 1973 and 1979, 15.1 percentage points more than in the large nonunion plans. The real benefits of retired union workers in the largest plans declined by 13 percent, as their benefit increases represented 66.7 percent of the rise in the CPI.

Retired workers in large nonunion plans did not fare as well as union workers. Average benefits in large nonunion plans having 10,000 or more recipients increased by 27.1 percent, as shown in the following table. These increases offset about 43 percent of the rise in the CPI during the six-year period. Thus, their real benefits fell 22 percent.

TABLE 2-11.—CHANGE IN MEAN BENEFIT FOR PERSONS RETIRED IN 1973 IN NONCOLLECTIVELY BARGAINED PLANS [1]

Year	Number of recipients in plan in 1979					
	1–99	100–499	500–999	1,000–4,999	5,000–9,999	10,000 and over
1973	100.0	100.0	100.0	100.0	100.0	100.0
1974	100.2	101.7	101.9	100.2	100.0	102.1
1975	100.6	106.2	106.5	103.7	110.0	104.9
1976	101.7	107.4	109.6	104.0	110.0	113.2
1977	102.2	108.3	109.6	109.5	110.0	114.0
1978	102.8	115.8	115.8	109.8	110.0	127.1
1979	103.3	116.9	115.8	110.0	120.6	127.1

[1] Benefits in each year as a percent of 1973 benefit.

Source: Clark, Robert L., Steven G. Allen and Daniel A. Sumner. Inflation and Pension Benefits, August 1983.

5. Ancillary benefits

In addition to paying pensions at retirement, most plans provide ancillary benefits in the form of survivor benefits and disability benefits. This section first discusses benefits provided to survivors of workers who die before retiring (preretirement survivor annuity) and after retirement (postretirement survivor annuity), and then discusses disability income provisions in the private sector.

a. Preretirement survivor annuity.—Pension plans that provide for the payment of pension benefits before the plan's normal retirement age are required by ERISA to offer a survivor annuity. At the time of our survey survivor benefits did not have to be paid if the worker died before reaching early retirement age, even if vested. The Retirement Equity Act of 1984 (P.L. 98–397), signed into law on August 23, 1984, now requires that survivor benefits be paid to the spouse of a vested participant, regardless of when death occurs. However, payment does not need to be made until the employee would have reached early retirement age.

Under ERISA the employer can charge the cost of providing this survivor protection to the plan participant. For example, an employee's accrued pension benefit can be reduced for each year the survivor protection is in force. A typical charge is 0.6 percent of accrued benefits for every year the survivor annuity provision is in effect before the employee's death or retirement. Most employers, however, pay for survivor protection as part of overall plan cost. In other words, if the worker lives to retirement, the plan does not charge the participant for this preretirement survivor protection. (Employers will have to reconsider the source of payment for the benefit in light of the liberalizations made by P.L. 98–397.) If a worker dies before retiring, the survivor's benefit is calculated as though the deceased worker had retired the day before death. The accrued pension would first be reduced for early "retirement" (a reduction of four to six percent a year is common), then further reduced actuarially to reflect the cost of providing a joint life annuity. ERISA requires that at least one-half of this reduced amount be payable to the surviving spouse.

The BLS data show that three-fourths of private pension plan participants are in plans providing survivor benefits equivalent to a reduced 50 percent joint life survivor annuity. In most cases, however, the survivor benefit was provided only if the participant died after reaching early retirement age. If death occurred before this time, survivor benefits were usually not paid, although, depending on family circumstances, survivors might receive social security benefits. While plans will have to be amended, the Hay-Huggins survey shows that only 37 percent of the firms provided private pension death benefits if a participant died before reaching early retirement age.

b. Postretirement survivor annunity.—Under ERISA, a pension plan providing benefits in the form of an annuity (i.e., periodic payments usually for the life of the retiree) must offer a 50 percent survivor annuity at normal retirement age for married retirees, unless the employee elects another option. The pension is actuarially reduced to reflect payout over the joint lives of the participant and spouse. ERISA requires survivor benefits to be at least one-half the reduced amount paid to the participant during the joint lives of the couple. If the retiree prefers a higher benefit in the form of a straight life annuity (with the pension stopping upon the retiree's death), the retiree must elect in writing not to take the survivor's benefit.[13]

Twenty-three percent of all participants in the BLS data base are in plans providing the minimum 50 percent survivor benefit required by ERISA. Most participants (64 percent), however, are in plans offering the payment of an alternative percentage at the retiree's option. This generally is made available as an actuarial equivalent at no cost to the plan.

6. Disability retirement

Private pension plans usually provide income to workers who become disabled as well as to those who retire. Under most plans workers must meet service and/or age requirements as well as the plan's definition of total and permanent disability. Service usually is emphasized, rather than age. Private pensions have followed the pattern set by social security, which has only a service requirement. According to BLS data, more than 50 percent of private pension participants were covered by plans that require at least 10 years of service to establish eligibility for disability benefits. Private plans require an average of 11 years of service for disability benefit eligibility, more than double the CSRS requirement of five years, and are somewhat more restrictive than social security's insured status requirement.

The BLS found that 86 percent of the pension plans in their 1980 employee benefits survey had disability retirement provisions that supplemented disability benefits payable under social security.[14] Two-thirds of the pension plans provided *immediate* benefits, and the other one-third provided *deferred* benefits, payable when disabled employees reached the early or normal retirement age. Disabled employees covered by deferred benefit plans usually received interim benefits under Long Term Disability (LTD) arrangements that their employers enter into with insurance companies. This insurance is usually not considered as part of pension plan costs.

a. Immediate disability retirement.—The BLS found that nearly three-fourths of the pension plans calculate the disability pension as if the employee were eligible for normal retirement; the benefits are not reduced for early payout, as they would be under early retirement. Because the disabled worker would have less credited service than if he worked until retirement age, the benefits are lower. If the employer also offers an LTD plan, typically the LTD benefit is reduced by the full amount payable from the pension plan.

Over four-fifths of blue collar workers with disability retirement coverage are in plans with immediate benefits. On the other hand, white collar workers with disability benefits in their pension plans are equally divided between plans with immediate and deferred benefits.

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[13] Under the Retirement Equity Act of 1984, an election to waive a survivor benefit is not effective unless it is in writing and is signed by both the participant and the participant's spouse.

[14] Bell, Donald and William Wiatrowski. Disability benefits for employees in private pension plans. Monthly Labor Review, Aug. 1982.

b. Deferred disability retirement.—Some pension plans provide deferred rather than immediate disability benefits. In such cases, income protection for chronic disabilities is usually provided through an LTD plan. These payments begin after sick leave and accident and sickness insurance are exhausted, and they continue as long as a disabled worker remains incapacitated or until he reaches retirement age. Salaried employees are more likely to be covered under a separate LTD plan than are hourly wage workers. Of the 854 companies in the Hay-Huggins data base, 93 percent offered LTD coverage. Similarly, of the 710 companies surveyed by Hewitt Associates, 95 percent provided LTD plans.

LTD plans usually guarantee disabled workers combined disability income from all sources replacing about 60 percent of earnings—more than is generally provided by pension plans with immediate disability retirement. Most deferred disability retirement benefits were found to be greater than immediate pensions because the time during which LTD benefits were paid was added to an employee's length of service for computation of pension benefits.

For example, a worker with 10 years of service who becomes disabled at age 50, must wait five or six months before receiving LTD benefits. Upon the 65th birthday, disability benefits would stop and the worker would receive a regular retirement pension. The worker's pension would be based on 25 years of service, 10 years of actual employment and 15 years of disability during which LTD benefits were received.

Most pension plans studied by BLS use the same basic formula to calculate disability and normal retirement benefits. The benefits for disability may be lower because they usually are based on the final average salary the worker was making at the time of disablement—in this case, some 15 years earlier.

c. Definition of disability.—Most pension plans define disability so that benefits are available only to workers whose incapacities require them to withdraw completely from the labor force. A few plans use more liberal definitions and require only that employees be unable to continue in their particular job with the company. Individuals meeting only this more liberal disability definition may not qualify for the stricter social security definition of disability. Plans with more liberal definitions often switch to a stricter definition of disability (usually social security's) after a certain period (two years is fairly typical).

d. Coordination with social security.—To avoid overly generous disability income, disability benefits under private pension plans are often reduced by part of the recipient's disability benefits from social security. IRS integration rules limit the offset to 64 percent of the worker's social security disability benefit.

LTD plans are not subject to these Federal limits on integration with social security, and they can subtract 100 percent of social security benefits. According to the Hay-Huggins survey, 81 percent of plans provide a dollar-for-dollar offset of LTD payments.

7. *The extent of employee contributions*

Employers pay the entire cost of nine out of ten defined benefit plans, and employees make no contributions whatever. (See table 2-12.) An increasing number of private sector organizations offer both defined benefit and defined contribution plans, and usually pay the entire cost of the defined benefit plan, while the cost of the defined contribution plan is shared by employers and employees.

TABLE 2-12.—EMPLOYEE CONTRIBUTIONS TO PENSION PLANS

[In percent]

	BLS	Bankers Trust	Hay	Wyatt	Hewitt	ASPA
Contributions required	7	9	11	22	9	4
Contributions not required	93	91	89	78	91	96

Note.—BLS figures are percent of participants. Other data sources are a percent of plans.

Federal workers pay seven percent of their pay to help finance the current CSRS. Private sector workers, and new Federal employees, must contribute to social security 5.4 percent of pay (5.7 percent in 1985) up to the present maximum social security taxable wage base of $37,800. (All Federal employees now contribute 1.3 percent for medicare, just as private sector employees do.) New employees must pay an additional 1.3 percent for interim CSRS coverage.

8. *Capital accumulation plans*

Four-fifths of the 100 largest companies in the Fortune 500 sponsor both a defined benefit plan and at least one defined contribution plan for some or all of their employees, according to the Department of Labor. The defined contribution plan is most likely to be a thrift (savings) plan, a deferred profit-sharing plan, or an employee stock ownership plan. Collectively, these defined contribution plans are referred to as capital accumulation plans.[15]

Capital accumulation plans have features that are attractive to both employers and employees. For employers costs are more predictable than is true for defined benefit plans and many ERISA/IRS regulations only apply to defined benefit plans. For employees they can supplement a pension plan and add an additional investment opportunity.

Table 2-13 shows that the majority of private sector companies (particularly large companies) provide capital accumulation plans as part of the retirement income package.

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[15] There is little distinction between defined contribution plans in general and capital accumulation plans, even when the defined contribution plan is a profit-sharing or other similar plan. Employers with capital accumulation plans maintain individual accounts for each employee, and participants are entitled to the vested amount in their accounts when they leave the company.

TABLE 2-13.—AVAILABILITY OF CAPITAL ACCUMULATION PLANS

	BLS	Hay	Hewitt	Wyatt
Number of companies surveyed	1,287	849	710	50
Number of companies with plans	958	533	623	49
Percent of companies with plans	74	63	88	98
Percent of surveyed companies with both defined benefit pension plans and capital accumulation plans	64	56	83	98

a. Thrift plans.—Thrift plans (sometimes referred to as savings plans) are employee benefit plans to which participants make periodic deposits. Generally, the full accumulated value of a participant's account is paid to employees who leave for other employment. Employers sponsor thrift plans as part of their overall retirement income system, and they usually match all or half of the contributions made by employees. The funds are invested, and each participant has an account in the plan. Employees are immediately vested in their own contributions, with employer contributions usually vesting after five years or less.

Employer contributions and investment income are not taxable to employees until funds are withdrawn. Employee contributions to a thrift plan are made from *after-tax* income, normally through payroll deductions. With the passage of the Revenue Act of 1978, employees are able to make contributions to 401(k) plans with dollars before income tax (but after social security payroll taxes). Many companies are therefore converting their thrift plans to 401(k) arrangements so that employees may take advantage of the favorable tax treatment. Under a 401(k) plan employees are offered the choice of receiving compensation currently or deferring as much as 25 percent of pretax compensation (up to $30,000) annually.[16]

Participation in thrift plans is voluntary. Usually over 70 percent of eligible employees participate in the plans. (Generally, 70 percent participation is required by IRS.) Most plans require a minimum period of service before employees are eligible to participate. The period of service, however, is one year or less in 93 percent of the plans.

Employees participating in thrift and 401(k) plans usually must contribute at least one or two percent of compensation. Normally the plan sets a maximum employee contribution, usually six percent, that will be fully or partly matched by the employer. (Some plans permit additional unmatched employee contributions.) In most cases the employer provides a contribution equal to 50 percent of the sum contributed by the employee. One out of five plans provide 100 percent matching.

b. Relationship of capital accumulation plan to defined benefit plan.—At least two-thirds of private sector organizations surveyed provided capital accumulation plans as part of their overall retirement income system. Analysis of selected data indicates that companies providing a combination of capital accumulation and defined benefit plans have plans that are just as generous as the companies that have only defined benefit plans. No relationship was found to exist between the generosity of the defined benefit plan and that of the capital accumulation plan.[17]

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[16] See Appendix A for a description of 401(k) and other types of capital accumulation plans offered by private sector employers.

III. STATE GOVERNMENT RETIREMENT SYSTEMS

A. INTRODUCTION

This section describes retirement systems of State governments, which help guide analysis of issues in designing a new Federal retirement system. The section focuses on systems currently open to new general service State employees. Over five million employees participate in these open systems. States that have redesigned their systems have some workers participating in systems closed to new employees. These closed systems will be excluded from this analysis along with pension systems for special groups of State employees, such as fire fighters, police, elected officials and teachers.

This section begins with a short history of State government retirement systems and then describes major design features: eligibility; earning of benefits; relationship with social security; postretirement adjustments to benefits; provision of ancillary benefits; and the availability of capital accumulation plans. (See Appendix A for additional information on coverage of State employees by retirement systems including a brief discussion of local government retirement systems.)

B. HISTORY OF STATE GOVERNMENT RETIREMENT SYSTEMS

Pension systems for public employees originated during the second half of the nineteenth century, with most of the early systems covering special categories of employees, such as police, fire fighters and teachers. In 1911, Massachusetts became the first State to develop a pension system for general service State employees, and by 1930, 12 percent of the larger State-administered systems currently in existence had been established. By 1947, every State provided retirement benefits.

The social security system was established in 1935 to cover certain workers in the private sector. Congress explicitly excluded State and local government workers, partly because the early objective of social security was first to include employees most in need of coverage. Many State and local workers were already included in other pension plans, and it was not until the social security amendments of the early 1950s that State and local governments were permitted to elect coverage. Thus, many retirement systems for public employees preceded social security. Although some States have modified their pension plans significantly to integrate with social security, most have chosen to maintain the pension as separate and in addition to social security benefits.

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[17] Our analysis of the Hay-Huggins data base shows that the mean value of the defined benefit pension plan is practically the same regardless of whether the company also provides a capital accumulation plan.

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C. DETERMINATION OF ELIGIBILITY

1. Vesting

Public and private pension plans typically require employees to participate in the plan for a minimum period before gaining a vested right to accrued benefits. Vested benefits are payable when employees meet the age and service requirements of the plan. About 70 percent of the States, employing 80 percent of covered employees, require either five or 10 years of service for vesting, with 10 years being most common. Several States use an alternative, either years of service or age (e.g., 10 years or age 60), and one State has immediate vesting upon employment. (See Appendix A for details.) In many public pension plans, however, including the current CSRS, separating employees who withdraw their contributions automatically forfeit vested benefits payable because of the *employer's* contribution. This forfeiture generally is prohibited under ERISA rules governing private plans.

D. DETERMINATION OF BENEFIT RECEIPT AND AMOUNT

1. Defined benefit vs. defined contribution

Almost all State-wide general service employee retirement systems are defined benefit plans. Only Nebraska provides its basic retirement benefit through a defined contribution plan. Three States (Alabama, Indiana, and Wisconsin) use a combination of a defined benefit and a money purchase plan.[18] Employees covered by the Alabama Public Employees Retirement System and the Wisconsin Retirement System, receive the higher of a money purchase or a defined benefit annuity. Indiana provides a money purchase annuity in addition to a basic defined benefit.

The prevalence of defined benefit plans in State pension systems was evolutionary.

> In many instances, this type of formula [defined benefit] has evolved over the years from a defined contribution approach. An example of the evolution is found in the California Public Employees' Retirement System. . . .
>
> When originally established in 1931, . . . the employer portion of the benefit matched in pension what the accumulated contributions of the employee provided when converted to an annuity. In 1947 the law was amended, leaving the pattern of employee contributions basically unchanged but converting the total retirement allowance to a defined benefit basis. If the goals of the new program were precisely met, the contributions of an employee whose entire service was under the formula would accumulate at retirement to the amount necessary to provide one-half of the retirement allowance, the employer being responsible for the balance. However, even if these goals were not met, the total benefit payment was still as scheduled, and the employer had to provide whatever pension was necessary to supplement the benefit provided by the accumulated employee contribution. This might require a contribution of the employer which more than matches the employee's contributions, or it could require less than matching. In any event, the employee could plan his retirement finances around the level of benefit which he had been led to believe would be his. The final stage in the evolution took place in 1971 in connection with an improvement in the benefit level. At that time, the employee contribution rate was changed to a uniform seven percent of salary from a schedule graded by sex and by age of entry.[19]

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[18] These three States have a defined contribution plan as part of their basic retirement package. See pages 66-68 of this chapter for a discussion of supplemental capital accumulation plans.

[19] Bleakney, Thomas P. Retirement Systems for Public Employees, published for the Pension Research Council, the Wharton School of the University of Pennsylvania by Richard D. Irwin, Inc., Illinois, 1972. pp. 35-36. Please note that comments on the California Public Employees Retirement System are current through only 1971.

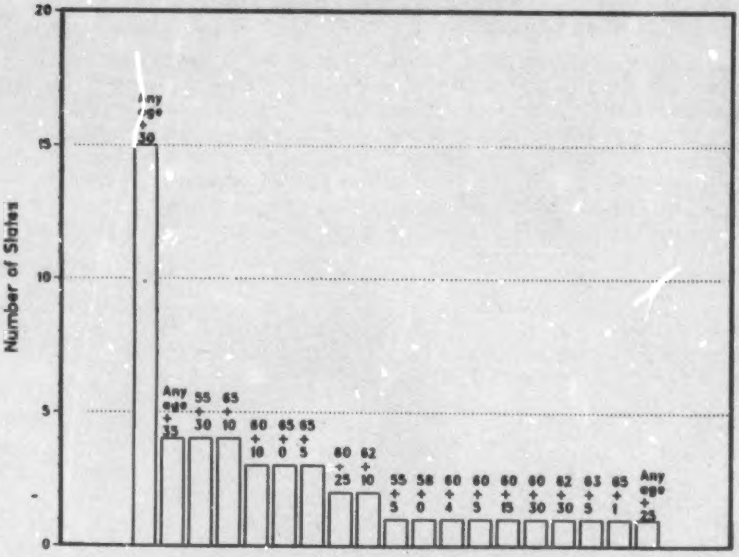
In short, State retirement systems evolved from directly relating benefits to contributions to relating benefits to years of service. As noted earlier, this latter approach (defined benefits) provides employees with more certain knowledge of their expected retirement benefits, and presumably permits better financial planning for retirement.

2. Years of service and age

All pension plans specify the age when workers may retire and begin to receive full benefits. Most plans require specified years of service. Most State plans also provide alternative age and service requirements for full benefits, with fewer years of service required at older ages. To accommodate workers who want to leave before reaching the age of full benefits, plans frequently allow early retirement with a reduction in the annuity.

Age and service requirements of State pension plans vary. (See Appendix A for a full discussion.) This section summarizes minimum age and service requirements for full retirement benefits (see Figure 2-1). Twenty States permit retirement at any age if service requirements are met; in 15 States this requirement is 30 years; four States require 35 years; and one State allows retirement at any age, with 25 years of service. Nine States provide unreduced benefits at age 60, and 11 not until age 65. States requiring employees to attain age 65 before retirement with unreduced benefits have considerably shorter service requirements. Altogether, half the States, covering 30 pecent of the employees, permit retirement with full benefits at or before age 55 (the youngest age allowed for full benefits in the Federal civil service). The States generally require a worker to have accumulated 30 to 35 years of service for full benefits at this age.

FIGURE 2-1.—State-wide Systems Earliest Age for Normal Retirement and Years of Service Required (50 States)



Unlike the current CSRS, all but four States permit voluntary early retirement with reduced benefits. Almost all States actuarially reduce benefits for employees who choose early retirement, assuring that the choice of early retirement will not cost the State more in retirement benefits than if employees retired with the same salary and service at normal retirement age. Early retirement requirements vary considerably among the States. Nine States allow early retirement at age 55 with 10 years of service, while 13 States employing 44 percent of all covered workers allow early retirement at age 50 or younger.

3. Maximum benefits

Some retirement systems cap pension benefits at a certain percent of an employee's compensation base or final average salary. The current CSRS, for example, limits employees' initial pensions to a maximum of 80 percent of their high-3 average annual pay. When a pension ceiling is set as high as 80 percent, it generally affects only very long service employees. In the CSRS, the cap is not reached until an employee has 41 years and 11 months of Federal service.

Capping pension benefits is uncommon in State-wide pension plans. Ten States covering 24 percent of State employees do have some kind of pension cap; but this figure is somewhat misleading because about half of these employees are covered by plans with caps ranging from 80 to 100 percent of their final average salary.

Such high caps affect few employees. The States of Iowa, New Mexico, New York, Vermont and Washigton have lower benefit ceilings of 50 to 60 percent.

4. *Benefit accural rates*

The amont credited toward the employee's pension for each year of service figures importantly in determining the amount of pension benefits. This credit is referred to as an accrual rate. Multiplying the accrual rate by a worker's number of years of service yields the basic percentage of earnings the worker can expect to receive at retirement. For example, if an employer wishes to provide a retirement annuity of 50 pecent of an employee's compensation base for an employee with 30 years of service, the accrual rate would be 1.67 percent per year (1.67 × 30 = 50%).

Table 2-13 presents the distribution of accrual rates in the 50 States. The accrual rates are the *effective* rates an employee would recieve after 30 years of work. Some States vary the accrual rates depending on an employee's length of service (as does the civil service retirement system). In the CSRS, an employee is credited with 1.5 percent of compensation base for work years one to five, 1.75 percent for years five to 10, and 2.0 percent for service over 10 years. It was necessary, therefore, to choose a specific number of years of service for illustration. Thirty years was chosen because it is a common normal retirement requirement of the State systems and it is the normal service requirement for full pension benefits at age 55 in the civil service retirement system.

The table assumes that workers have met the necessary age and service requirements to receive a full pension benefit.

The specific rates of 1.67 percent and 2.0 percent are shown on table 2-13 because they are quite common. An accrual rate of 2.0 percent yields a pension benefit of 50 percent of compensation base after 25 years and 60 percent of compensation base after 30 years. An accrual rate of 1.67 percent yields a pension benefit of 50 percent of compensation base after 30 years.

States show a great deal of variation in accrual rates as shown in table 2-14. For purposes of comparison, the civil service retirement system accrual rate for a 30 year employee is 1.875 percent, which yields a replacement rate of 56.25 percent (of salary base). In all, 19 States have accrual rates greater than the CSRS. As would be expected, States without social security coverage have accrual rates at the high end of the scale, while there is a wide range of accrual rates for States with add-on plans. About two-thirds of these States use accrual rates that will yield a benefit of at least 50 percent of compensation base after 30 years, and one-third have more generous rates that the current CSRS. Fourteen States use accrual rates that provide benefits of less than 50 percent of the compensation base after 30 years of service. These employees are, however, covered by social security. States with step-rate integration plans use relatively low accrual rates. None is as high as the current CSRS, even at the "high" end of the step. Once again, comparisons with the current CSRS should be made with caution since these State employees also will receive social security benefits. The accrual rates for offset integration plans are difficult to interpret because the final benefit is dependent on the size of the offset. Thus they are omitted from table 2-14.

In summary, States without social security coverage tend to have high accrual rates. There is significant variation in accrual rates for States with social security, but many would be considered generous when combined with social security benefits.

TABLE 2-14.—BENEFIT ACCRUAL RATES PER YEAR OF SERVICE FOR 30 YEAR EMPLOYEES [1] NORMAL RETIREMENT

Accrual rate (percent)	No OASDI coverage	OASDI coverage [2]	
		Add-on	Step-rate [3]
Under 1			
1 to 1.49		9	
1.5 to 1.66		5	3
1.67		8	
1.68 to 1.99		1	2
2.0	4	10	
Over 2.0	3	2	
Total [4]	7	35	5

[1] Some plans vary the accrual rate depending on length of service, as does the current civil service retirement system. The accrual rates in this table represent the effective rate for 30 years of service. Some rates would change if a different length of service were used.

[2] The table excludes three offset plans because the accrual rates cannot be presented as a single value. The effective accrual rate depends both on the rates per year of service applied to the compensation base, the social security PIA, and on the relationship between the compensation base and the PIA (which, among other things, varies by wage history).

[3] Accrual rate above the integration level. For salary amounts below the integration level, accrual rate is lower (range below integration level is from 0.8 to 1.5).

[4] Includes some double counting due to multiple accrual rates in several States.

5. Compensation base and annuity computation

The major variables used by States in determining the earnings on which to base the pension (salary base) are (1) the number of years used to compute average pay, (2) whether those years must be consecutive, and (3) types of compensation counted. Assuming that salaries rise with service, the more years included in the compensation base, the lower average annual earnings will be; conversely, the fewer the years, the higher the average. If consecutive years are not required, employees with fluctuations in earnings can take advantage of their higher salary years. Also, the compensation base will rise if forms of compensation other than base pay, such as overtime, longevity, or unused sick pay, are counted.

Table 2-15 displays the variations in State compensation bases. Only one State uses the average salary over a full career. Half of the States, employing 58 percent of State workers, use the three years of highest earnings as the compensation base. Almost 34 percent of State employees are in systems using the high-3 consecutive years. This is the same base used in the civil service retirement system. One-fourth of the State employees are in systems using the three highest years of a worker's entire career. Sixteen States, representing 30 percent of State employees, use the high-5 years of service, and the majority of these States require that the years be consecutive.

TABLE 2-15.—STATE-WIDE SYSTEMS: COMPENSATION BASE FOR BENEFIT DETERMINATION [1]

	Number of States	Percent of workers
Career average	1	0.4
High 2 consecutive	2	3.7
High 3 years:		
Consecutive	14	33.9
Career high	11	24.5
High 4	2	6.1
High 5:		
Consecutive	10	13.6
Career high	6	16.5
Did not report	4	1.3
Total	50	100.0

[1] Four States not specified (0.2 percent of workers).

E. INTEGRATION WITH SOCIAL SECURITY

1. Social security coverage for State systems

Social security coverage is mandatory for private sector employers, but it is optional for State and local governments. Until the passage of the 1983 social security amendments, State and local governments could enter the system and leave it at their choice. The 1983 amendments repealed their right to leave the system after once joining it. The Congress originally excluded State and local government employees from social security coverage because (1) they thought mandatory coverage might be judged unconstitutional and (2) they believed groups of private employees, with no retirement income security, deserved the first priority.

> In the original Social Security Act, State and local governments were omitted altogether from social security coverage. State and local governments were excluded to avoid the possible constitutional question of whether the Federal Government could tax State and local governments, and because one of the early objectives of the program was to cover employees most in need of coverage. Many State and local governmental employees already were covered under other pension plans. . . .
>
> Beginning in 1950, Congress amended the social security law several times to make participation in social security available on a voluntary basis to employees of State and local governments at the discretion of the employer. . . .[20]

When the option for social security coverage was first extended to them, only States and localities whose employees were not covered by a pension plan could join the system. In 1954, amendments to the Social Security Act extended the choice of participation to employers whose employees already were covered by a State or local pension system.

Most States extend social security coverage to their employees. Only the State employees of Colorado, Louisiana, Maine, Massachusetts, Nevada and Ohio have never participated in the system; Alaska is the only State to have entered and later to have withdrawn from the system. The 43 States providing social security coverage employ 88 percent of all general service State workers. Not all employees belonging to statewide personnel systems, however, are covered by social security. Under some conditions, the Social Security Act permits certain groups of State employees to elect whether or not to be covered once the State has decided to participate. With the exception of the seven States mentioned above, nearly all of the employees of States participating in the social security system are covered.

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[20] Social Security: Withdrawal by State and Local Governments and Non-profit Organizations, by David Koitz, CRS Report No. 82-174 EPW. (This report predates the 1983 social security amendments that repealed the right of State and local governments and nonprofit organizations to withdraw from the system once they had chosen to participate.)

The pensions provided by most Statewide systems supplement social security but are not integrated with it. They often are called "add-on plans," providing social security plus a full pension. Many States plans are not integrated because they were established before social security coverage was made available to public employees.

Social security coverage for State and local employees expanded rapidly in the first decade (the 1950s) after coverage was extended to public employees. Coverage increased to about 60 percent by 1960, and to 70 percent by 1970, and has remained fairly constant since then.[21]

By 1947, all but 16 States (primarily mid-west and western States) had general service employee pension systems.[22] Thus, for many State governments, social security became an addition to the overall retirement package, rather than an integral part of the retirement system design. As a result, there are major differences between State pension plan and private pension plan treatment of social security benefits.

2. Types of basic pension benefit formulas

Although many State retirement systems participate in social security, few are integrated with it. The general effect of pension integration is to counteract, to varying degrees, the tilt in the social security formula that favors lower wage employees.[23] Only eight of the 43 States participating in the social security system now have integrated benefit formulas.[24] (See table 2-16.) The States that have integrated their benefit formulas with social security maintain older add-on benefit formulas for employees whose service began before the State enacted the new integrated pension system. For example, Connecticut's pension system integrated with social security in 1982, but the old system remains in place for workers hired before that time.

Thirty-one statewide retirement systems, covering 66.5 percent of the employees reviewed in this report, provide basic pension benefits as add-ons to full social security benefits. In effect, these States consider social security as an add-on to the original, basic pension.

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[21] Source: U.S. Department of Health and Human Services, Social Security Administration. State and Local Employees Covered Under Social Security. Research and Statistics Note, No. 3, July 20, 1982.

[22] Mackin, John P. Protecting Purchasing Power in Retirement, Fleet Academic Editions, Inc., New York, 1971, pp. 7-8. This book also contains a more detailed account of the historical development of State and local pension systems and coverage of State and local employees by social security.

[23] See pages 45-46 of this chapter for a full discussion of pension integration.

[24] Nine States are integrated with social security if South Dakota, which offers employees their choice of the higher of a non-integrated and an integrated benefit formula, is counted. In addition, California does deduct $133.33 per month from the final average salary used to compute the pension benefit for those employees covered by social security.

Basic pension benefit formulas for all 49 defined benefit States follow the final average salary principle. Benefits are based on a certain percentage of an employee's final average salary (usually referred to as the compensation base) for each year of covered service. As noted previously, the benefit formula features (the accrual rate, definition of final compensation base, maximum number of countable years of service and various offsets that may be used in the calculation) vary substantially.

TABLE 2-16.—TYPES OF BENEFIT FORMULAS—STATE GENERAL SERVICE RETIREMENT SYSTEMS

Benefit formula type	OASDI coverage		No OASDI coverage	
	Number of States	Percent of employees	Number of States	Percent of employees
Defined benefit:				
Percent of compensation [1]			7	12.4
Add-on [1]	31	66.5		
Combination add-on and another type	3	3.9		
Step-rate integration [2]	5	11.9		
Off-set integration [3]	3	5.1		
Defined contribution	1	0.2		

[1] General Form: Pension = accrual rate × compensation base × years of service.

[2] General Form: Pension = (accrual rate 1 × compensation base up to integration level) + (accrual rate 2 × compensation base above integration level) × years of service.

[3] General Form: Pension = (accrual rate × compensation base × years of service) − (percent × years of service × PIA (Primary Insurance Amount)).

F. POSTRETIREMENT MAINTENANCE OF REAL BENEFIT LEVELS

1. Postretirement annuity adjustments

A pension plan may or may not adjust benefits of retirees to offset the effects of price inflation. Federal pensions are generally increased by changes in the cost of living, a practice which, in times of high inflation, is very expensive. Private pension plans rarely include automatic adjustments but are often adjusted on an ad hoc basis. These ad hoc adjustments generally do not equal the full amount of inflation. Social security, on the other hand, is generally increased to the rate of inflation and therefore partly compensates private sector workers for unadjusted pensions.

Table 2-17 shows the array of postretirement annuity adjustments used in the 50 States. Because most States participate in the social security program, generally adding State pensions to its benefits, most State workers benefit from social security indexation. No State reports an automatic annuity adjustment to the State pension based on the full Consumer Price Index, while only one State, with a reasonably new retirement system, reports it has never provided a postretirement adjustment. One other State, New York, provides a three percent adjustment only to annuities of workers who wait until age 65 to retire, scaled back by one percentage point per year (workers retiring at age 62 get no adjustment). However, 24 States employing 58.1 percent of State employees provide annual adjustments, calculated according to a statutory formula, and without need for action by the State legislature. Most adjustments are based on the CPI, with maximum limits, most commonly 3.0 percent. A maximum adjustment of 3.0 percent can be fairly generous in times of low inflation but provides less protection of purchasing power when inflation is high.

TABLE 2-17.—POSTRETIREMENT ANNUITY ADJUSTMENTS IN STATEWIDE SYSTEMS

[In percent]

Type of adjustment	States	State workers
Automatic:		
60 percent of full CPI	2.0	4.2
Flat 2.5 percent	2.0	1.0
Flat 3.0 percent	8.0	3.0
One-half CPI up to 3.0 percent max	2.0	0.5
CPI up to 3.0 percent max	10.0	13.9
3.0 percent if CPI at least 3.0 percent	2.0	5.2
CPI up to 4.0 percent max	2.0	4.5
4.0 percent if CPI at least 4.0 percent	6.0	5.1
CPI up to 5.0 percent	2.0	0.2
1.0 to 2.0 percent plus ad hoc	6.0	13.8
3.0 percent plus ad hoc	4.0	2.6
Ad hoc only	30.0	22.6
Other[1]	16.0	20.3
No adjustment	2.0	0.2
Not reported	6.0	2.9
Total	100.0	100.0

[1] Kansas: A "dividend" is paid as the 13th check (one per year).

Minnesota: Benefits are increased by any earnings in excess of five percent in the retirement reserve.

Mississippi: A 13th check is issued (once per year), in an amount equal to 2.5 percent x years since retirement x annuity.

Missouri: Automatic 4 percent minimum, five percent maximum, based on 80 percent of CPI, with limit of 50 percent of original monthly benefit.

Nebraska: When the plan carrier determines that the earnings of the fund are in excess of the amount needed for benefits, they increase annuities but only when they can guarantee that the new level can be maintained.

New York: An automatic three percent increase is paid, or the increase in the CPI, whichever is less, but is provided only to workers who retired at age 65 or over. No adjustment is provided for workers retiring at age 62 or younger. One percent is given if retirement is at age 63, and two percent at age 64.

Virginia: Full amount of first three percent increase in the CPI, plus half of increase from three percent to seven percent, five percent maximum.

Wisconsin: "Dividend" added to annuities if gains on reserve fund exceed projections.

Source: National Association of State Retirement Administrators.

The two different methods used to determine automatic adjustments are (1) any increase in the CPI up to the limit; or (2) an automatic adjustment only if the increase in the CPI is at least equal to an established threshold.

Ad hoc adjustments have been provided in 30 percent of the States (22.6 percent of State employees). Another 10 percent of the States have provided ad hoc increases in addition to small automatic adjustments. While ad hoc adjustments are not established by fixed formulas and regular schedules and are generally subject to approval by State legislatures, they are, in most cases, provided on a regular basis, from once a year to once every three years.

When States make annuity adjustments, they may apply the increase to the *initial* annuity of the beneficiary or they may increase the current annuity. The second method allows increases to compound while the first does not.

Some States base ad hoc increases on the earnings of the pension fund, and such payments are handled in different ways. They may be treated like any other increase in the basic annuity and added permanently to monthly checks, or they may be a "13th check" sent to all annuitants. Five States use the additional annual payment or "dividend" approach.

2. Special tax treatment

Twenty-six States, covering 40 percent of the employees, provide some special State tax treatment for the pension benefits of their retirees. The most common practice is to exempt the pension benefits from all State and local income taxes, but some States exempt only a portion of retirement income from State taxes. In addition, State laws provide a number of tax shelter features for employee contributions to State pensions. Discussions of the types of special tax treatment of contributions and of capital accumulation plans used by the States are included later in this chapter.

G. ANCILLARY BENEFITS

1. Death and survivor benefits

All States provide some benefits to the survivors of State employees who die before they retire as well as to survivors of retirees. In general, States impose length of service requirements for benefits payable to the survivors of employees. The minimum benefit paid to survivors of employees who do not meet the service requirement is a refund of the amount the employee paid into the retirement system. In general, the States return these employee contributions with interest. For employees meeting the service requirement, but not normal retirement requirements, States often pay the survivor either a lump sum in addition to the refunded contributions or a monthly annuity. Traditionally, States have determined the value of the lump sum or annuity in a variety of ways. Benefits could vary depending on years of service, number of dependents, age of dependents, and age of spouse, among others.

If the employee was eligible for retirement benefits at the time of death, the State pension plan generally provides a joint-and-survivor benefit similar to that available for survivors of retired employees.

States commonly provide a choice of joint-and-survivor benefit plans at retirement. Under these plans, the retiring employees can choose a survivor benefit equal to 50 percent, 75 percent or 100 percent of their full annuity. Employees pay for this additional coverage by accepting an actuarial reduction to the regular annuity. These benefits are provided at no additional cost to the retirement system.

2. Disability retirement

States commonly provide for retirement based on disability. They use varying definitions of disability. Thirty-six percent require workers to meet the social security disability definition, 40 percent that they be unable to perform their own jobs or other comparable State jobs, and 24 percent use their own definition of total and permanent disability.

States generally impose a service requirement for eligibility for disability retirement. The length of service required is the same as the retirement vesting period in about half the States—usually either five or 10 years.

States use wide variations to compute disability retirement benefits but the formula used is usually related to the normal retirement formula. Workers are credited with years of service projected to normal retirement age in the State or to age 60, with a maximum number of total years allowable, varying from 20 to 30 years.

States commonly place a minimum and/or maximum limit on disability retirement benefits and impose a ceiling on earned income. In a few States, the State disability pension is offset by all or part of any social security benefit. Often any workman's compensation is subtracted from the State disability benefit.

H. EXTENT OF EMPLOYEE CONTRIBUTIONS

Most public employees, unlike most workers covered by private pension plans, make contributions to help finance pension benefits. Proponents of employee contributions for public retirement systems maintain that such financing builds taxpayers' support for the program, provides a dependable source of revenue for the plan, helps restrain taxes, and lessens pressure for benefit liberalization from employees, who would have to help pay the cost.

Opponents of employee contributions for public pensions say that the existence of the pension plan keeps wages lower than they would otherwise be and that requiring employees to help pay for pensions further decreases their current compensation. They object also to the administrative complexity, including the need for individual employee accounts, procedures to deal with breaks in service, and re-purchase of past service for rehired workers. Finally, most State employees are covered under social security and must pay the social security tax. Some feel that imposing another payroll "tax" on employees hampers the ability of the public sector to compete with private jobs, which generally do not require employee contributions to help finance pensions.

Tale 2-18 shows the proportions of States and State workers by the total percentage of gross salary that they must pay for social security plus their State pension. Altogether, 12.6 percent of State workers pay a total of 12.5 percent or more of salary into the two systems; 12 percent pay only the 5.4 percent required under social security because their State system is noncontributory. Over one-third of these workers pay between 9.5 and 11.4 percent; about one-quarter pay less than 9.5 percent. (See Appendix A for the specific contribution rates to the State pension.)

TABLE 2-18.—STATEWIDE SYSTEMS: PERCENT OF STATE WORKERS AND STATES BY COMBINED SOCIAL SECURITY AND STATE PENSION CONTRIBUTION RATES

[In percent]

Combined State and social security contribution rate (percent of pay)	States	Workers
5.4 (social security only) [1]	10	12.0
5.5 to 8.4 [2]	6	6.5
8.5 to 9.4	12	8.8
9.5 to 10.4	20	21.2
10.5 to 11.4	16	15.6
11.5 to 12.4	4	2.5
12.5 to 13.4	4	11.3
13.5 to 14.4	2	1.3
Other rates	12	8.4
No social security	14	12.4
Total	100	100.0

[1] Net social security taxes for all employees will rise to 5.7 percent in 1985, so all social security based amounts will rise accordingly.
[2] Three States require a three percent contribution to the State plan, plus the 5.4 percent social security tax.

States use several methods for decreasing the impact on employees of required employee contributions. These include "employer pick-up plans" and increased take-home pay plans.

Section 414(h)(2) of the Internal Revenue Code provides for "employer pick-up" of normal employee contributions to a pension plan. Employer pick-up plans are a method of decreasing Federal income tax liability (and thereby increasing take-home pay) by making contributions to a pension plan with pre-tax rather than post-tax income. Under a pick-up plan, an employee's gross salary is reduced for Federal income tax purposes by whatever amount of the normal employee contribution the employer "picks-up." Therefore his Federal tax liability is reduced. This has the net effect of increasing the amount of the employee's take-home pay. Appendix A provides an example of how take-home pay is increased and may help to clarify the manner in which these plans work. Because the amount of the employee contribution does not change, there is no cost of an employer pick-up plan to the employer (except administrative costs); there is only a tax expenditure by the Federal Government.

An increased take-home pay (ITHP) plan looks much like an employer pick-up plan. The difference is that, in an ITHP, the employer effectively reduces the employees' contribution by some amount. The employee's gross salary, and therefore Federal income tax liability are not affected. His take-home pay is increased because his contribution to the pension plan is decreased. Under an ITHP, the employer cost increases and there is no impact on Federal income tax revenues. These methods are discussed in greater detail in Appendix A.

I. CAPITAL ACCUMULATION PLANS [25]

In addition to the basic retirement systems, some State and local governments offer their workers supplemental retirement plans. The key attraction of these plans, which take numerous forms, is potential tax savings for employees. Income tax is generally deferred on contributions made to these plans during an employee's career. Taxes are paid when the individual receives benefits from the plan, usually after retirement when the individual expects to be in a lower tax bracket. It should be noted that the plans described below generally reduce current Federal income tax liability only. States make their own provisions for the State tax treatment of deferred compensation.

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[25] Information for this section was taken primarily from Supplemental Retirement Plans for New York Public Employees, a report of the Permanent Commission on Public Employee Pension and Retirement Systems, Nov. 1983. (Hereafter cited as Supplemental Retirement Plans for New York); and State Deferred Compensation Programs; their Status in Thirty-Six States, by E. Norman Sims, Deborah A. Gona, Kathlene Ashcroft, prepared for the National Association of Auditors, Comptrollers and Treasurers. (Hereafter cited as State Deferred Compensation.)

According to the New York State pension commission study, the following types of supplemental retirement plans could be made available to State or local government employees:

- Section 457 plans,
- Section 403(b) Tax Deferred Annuities,
- Section 401(k) Plans,
- Thrift Plans,
- IRAs,
- Deductible Voluntary Employee Contributions (DVEC), and
- Supplemental Annuity Plans.

Some of these plans, including Section 401(k) Plans, Thrift Plans, IRAs and Supplemental Annuity Plans, are available to employees of private employers as well as employees of State and local government. Appendix A describes these plans in detail.

Section 457 of the Internal Revenue Code (IRC) authorizes State governments (and their political subdivisions) to assist their employees in deferring compensation. Deferred compensation generally refers to wages not received until a worker retires, resigns, or is fired from a job. The deferred wages are not counted as taxable income until the employee receives them (along with any accrued interest or earnings).

General requirements of Section 457 plans follow: Employees participate on a voluntary basis and up to 33⅓ percent of an employee's "includible" income (up to $7,500) may be deferred.[26] "Includible" income does not count amounts deferred under the plan (or other types of deferred compensation plans) or employer "pick-up" plans. Thirty-three and one-third percent of "includible" income is equal to 25 percent of a non-participating employee's gross income. Employers may not make supplemental contributions to the plan. The deferred contribution can be paid only after the worker leaves the job or when an unforseeable emergency occurs. Unlike IRAs, no penalty is charged for distribution of the funds before age 59½. The full amount of the deferred compensation, includings any earning or property rights, must remain the property of the employer (State or local government) until distribution. The plan may provide employees with a range of investment options. Because favorable tax treatment requires that the employer retain property rights to the deferred compensation, the plan may not be under obligation to transfer investments at an employee's request.

A large majority of States have set up section 457 plans for their covered employees (33 out of 36 States surveyed in the Council of State Governments report and 80 percent of all States according to the New York State study). Although data on the operation of these plans are limited, it appears that participation rates currently are relatively low—about 10 percent of covered employees.

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[26] This percentage would differ if the employee participates in more than one deferred compensation plan or an employer "pick-up" plan. There are special rules on combining income or reducing the salary base in applying the contribution limits for such employees.

Deferred voluntary employee contribution (DVEC) plans are similar to IRAs. They are authorized in section 72(O) of the IRC, added by the Economic Recovery Tax Act of 1981. DVECs work exactly like IRAs except that the pension plan must specifically permit the DVEC and the maximum contribution is $2,000, with no contribution permitted for a non-working spouse. If a worker also has an IRA, the DVEC contribution must count against the IRA contribution limit.

IV. REPRESENTATIVE PRIVATE SECTOR AND STATE GOVERNMENT PENSION SYSTEMS

A. INTRODUCTION

The Congressional Research Service (CRS) developed "representative" pension systems for the private sector and for State governments. These systems, based on the surveys of pension practices described in sections II and III of this chapter, are necessary for comparing the cost and benefit distributions of these systems with the current civil service retirement system. Chapter 3 presents results of this comparative analysis.

The representative plans do not necessarily have specific features of any particular pension system in the private or State government sectors. Neither are they averages of pension features because the available sources of information and the type of information do not permit calculation of averages. Rather, these representative plans can be thought of as composites—made up of features included in most private sector and State government systems.

The two private sector plans are shown with and without the effect of a capital accumulation plan. Available analysis indicates no statistical relationship between provision of a capital accumulation plan and generosity of other pension benefits. Accordingly, our analysis of capital accumulation plans shows them as simply being added to the two private sector representative plans.

B. PRIVATE SECTOR

Although few pension plans are alike in all respects, available data permit generalizations about pension plans that cover salaried employees. Depending on the feature, as many as 80-90 percent of salaried pension plan participants:

- are not required to contribute to the pension plan;
- must participate in the plan 10 years before the benefits earned are vested;
- may retire at age 55 with reduced benefits or at age 62 with unreduced benefits;
- are in plans integrated with social security;
- have their pension computed on the basis of their highest 5-year's average earnings;
- receive ad hoc adjustments to their retirement benefits that have offset about 30 percent of the rise in the CPI in a recent period;
- offer pre- and postretirement survivor benefits only as required by ERISA's minimum standards; and

- are covered by an LTD disability arrangement while disabled, and are given service credit for the years on disability in computing a pension at retirement.

This study found no correlation between the age for unreduced benefits and the type of integrated plan (i.e., offset plan versus step-rate plan), but different retirement ages for full benefits were considered appropriate for the representative private pension plans. While the BLS data base shows that age 65 is the most common age at which participants could retire with full benefits, a slight majority of plan participants could receive full benefits at age 62 or earlier. Either age 62 or age 65 can therefore be considered a typical age. Age 62 was selected arbitrarily for unreduced benefits under the offset plan; age 65 was selected for unreduced benefits under the step-rate plan. The more liberal retirement age in the offset plan was counteracted by a five percent per year early retirement reduction compared to a four percent per year reduction in the step-rate plan.

Benefits under the two private sector representative plans are assumed to increase annually by 30 percent of the increase in the Consumer Price Index—the amount found by the most comprehensive study of postretirement benefit inflation adjustments.[27] This study showed, over six years, an overall average increase for all pensions of 38 percent of the CPI. Benefits under nonunion plans, most likely to cover salaried employees in the private sector, increased by about 30 percent of the increase in the CPI, the amount selected for the representative plans.

Table 2-19 indicates the features of the two private sector representative plans. Table 2-20 describes the representative capital accumulation plan that will be used in chapter 3, in conjunction with the two representative pension plans, to compare their costs and benefits to those of the current civil service retirement system.

TABLE 2-19.—REPRESENTATIVE PRIVATE PENSION PLANS

Feature	Offset plan	Step-rate plan
A. Normal retirement age (unreduced benefit).	62	65.
B. Early retirement (reduced benefit)	55	55.
C. Early retirement reduction	5 percent per year	4 percent per year.
D. Participation requirement	Age 25 w/1 year's service	Same as offset plan
E. Employee contributions	None	Do.
F. Vesting	10 years	Do.
G. Benefit formula	1.6 percent of average compensation for each year of service minus 1.25 percent of social security for each year of service.	1.0 percent of average compensation below integration breakpoint and 1.5 percent above for each yr of service. Breakpoint is average social security maximum taxable wage over career (i.e., $13,800 for someone retiring in 1985)
H. Compensation base	High-5	Same as offset plan.
I. Maximum years of credited service	40 years	Do.

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[27] See reference to comprehensive assessment conducted by researchers at North Carolina State University for the years 1973-1979, pp. 47-48 of this report.

TABLE 2-19.—REPRESENTATIVE PRIVATE PENSION PLANS—Continued

Feature	Offset plan	Step-rate plan
J. COLA	3.0 percent or increase in CPI, limited to 30 percent CPI increase over period of receipt.	Do.
K. Preretirement death benefit	Survivor benefit available upon reaching age 55; actuarially reduced for early "retirement," with 50 percent going to survivor.	Same as offset plan.
L. Postretirement death benefit	Benefit actuarially reduced for joint life expectancy with 50 percent going to surviving spouse.	Do.
M. Disability benefit	Separate Long-term disability (LTD) plan replacing 60 percent of pay offset by any social security benefits. At age 65 disability retirement kicks in w/ service projected to age 65.	Do.

TABLE 2-20.—REPRESENTATIVE CAPITAL ACCUMULATION PLAN

A. Minimum employee contribution	2 percent of pay.
B. Maximum employee contribution	6 percent of pay.
C. Maximum employer match	50 percent of employee contribution.
D. Vesting:	
1. Employee contribution	Immediate.
2. Employer contribution	5 year's participation.
E. Eligibility	1 year's service.
F. Employee investment choice	Yes.
G. Optional investment change	Annually.

C. STATE GOVERNMENTS

Two representative State government retirement systems were constructed from the features described in Section B of this chapter. These representative systems are necessary to compare the costs and benefit levels and distributions of State pensions to those of the current civil service retirement system (see chapter 3).

Some features are common to both representative systems because most State pension systems for general service workers have them. These include:

—social security coverage;
—requirement for employee contributions;
—retirement at age 55 with reduced benefits;
—benefits computed from highest three eyars average earnings;
—minimum disability benefit of 50 percent of earnings;
—pre- and postretirement survivor benefits after vesting; and
—postretirement cost-of-living adjustment (more commonly the lower of CPI or three percent).

Other system features, such as normal retirement age, level of employee contribution, and annual benefit formula, differ in the two representative plans so that they are different in generosity. The more generous State plan (Plan 1) permits retirement with unreduced benefits at any age with 30 years of service. As shown in Appendix A, 15 States have this generous full retirement provision, more than have any other specific full retirement provision. State plans permitting normal retirement after 30 years of service, regardless of age, generally use about a 2.0 percent accrual rate, and require employees to contribute about six percent of salary (in addition to social security taxes). Although accrual and contributions of plans permitting full retirement with 30 years of service varied from each other, the pattern of association between normal retirement, accrual rate and contribution rate was generally consistent.

The features of State system 2 are less generous, and together constitute a lower cost representative system. Full retirement at age 65 is the second most common full retirement requirement, and 10 years of service is the most frequent minimum service requirement within this group. Representative system 2 includes an accrual rate of 1.5 percent and an employee contribution rate of two percent (in addition to social security taxes), although the States vary considerably on these features. Table 2-21 presents the specifications for the two representative State plans.

Both State plans include an annual COLA of the CPI up to 3.0 percent. Because inflation is assumed to be 4.0 percent, the limitation on the COLA does not have a great effect on the cost of the program or on the purchasing power of annuities. However, when inflation is high, a 3.0 percent maximum adjustment has a greater limiting effect on costs and benefits.

A capital accumulation plan (e.g., Sec. 457 plan) was excluded from the representative State plans because our limited evidence suggests that while such plans are becoming available, participation is low. Few of the plans call for employer contributions.

TABLE 2-21.—CHARACTERISTICS OF REPRESENTATIVE STATE RETIREMENT SYSTEMS

	CSRS	State	
		System 1	System 2
A. Retirement benefits:			
1. Age/service for full benefits.	55/30	Any/30	65/5.
2. Age/service for reduced benefits.	N/A	55/10	55/10.
a. Annual reduction	N/A	6 percent	4 percent.
3. Accrual rate	1.5 percent first 5 years 1.75 percent second 5 years 2.0 percent remaining years	2 percent	1.5 percent.
4. Maximum benefit (percent of pay base).	80 percent	None	None.
B. Pay base	High-3	High-3	High-3.
C. Years of full vesting	5	10	5.
D. Disability benefit:			
1. Minimum benefit as percent of pay base.	40 percent	50 percent	50 percent.
2. Payable	Immediately	Immediately	Immediately.
3. Years of eligibility	5	5	5.
E. Survivor benefit before retirement:			

TABLE 2-21.—CHARACTERISTICS OF REPRESENTATIVE STATE RETIREMENT SYSTEMS—Continued

	CSRS	State	
		System 1	System 2
1. Minimum benefit as percent of pay base.	22 percent	25 percent	25 percent.
2. Eligibility	1½ years	At vesting	At vesting.
F. Inflation adjustment (If inflation is 4% a year).	4 percent	3 percent	3 percent.
G. Employee contribution [1]	7 percent	6 percent	2 percent.
H. Social security coverage	No	Yes	Yes.

[1] State employees contribute 5.4 percent (1984) of pay for OASDI in addition to contributions shown in the table. CSRS and State employees also contribute 1.3 percent of pay for hospital insurance.

N/A—Not available.

CHAPTER 3: COSTS AND BENEFITS OF THE CURRENT CSRS COMPARED TO REPRESENTATIVE PRIVATE SECTOR AND STATE GOVERNMENT SYSTEMS [28]

I. INTRODUCTION

This chapter compares the costs and benefits of the representative nonfederal plans to the current civil service retirement system (CSRS). We compare pension costs using the concept of entry age normal costs, and compare participant benefits using replacement rates, the study's principal measure of benefit generosity and distribution. Replacement rates,[29] retirement income from a pension system divided by a measure of income (usually salary) for a period shortly before retirement, are shown for different age, service, and marital status combinations; for different income levels; and for different periods of time after retirement.

II. COST ANALYSIS

A. NORMAL COST

This study uses one actuarial cost concept throughout as the principal measure of pension system costs. Entry age normal cost is the present value of future benefits divided by the present value of future compensation, for statistically representative new entrants to the work force. In effect, it is the percentage of every paycheck needed to be set aside over the total career of each new employee, to pay all his benefits, including those to survivors. In more technical language, the normal cost amortizes the present values of the future benefits of an employee or group of employees over their working lifetime. Normal costs are usually stated as a percent of payroll in order to facilitate comparisons over time periods and across plans.

The normal cost of a retirement system depends on a set of economic, demographic, and behavioral assumptions. For example, the benefits a participant receives depend on retirement age, life expectancy, earnings history, and many other characteristics. A standard set of assumptions is used for cost estimates throughout this report. (See Appendix C.)

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[28] Cost estimates in this chapter, and much of the analysis of the relative cost of pension plan features, were provided by the actuaries of Hay-Huggins, Inc.

[29] See Part III of this chapter for a discussion of the concepts and definitional questions of replacement rates.

B. COMPARISON METHOD

To compare different pension plans among different employers (i.e., private, State, Federal) this study uses an actuarial methodology that, in effect, holds workforce characteristics and demographic and economic assumptions constant. The goal is to value pension benefits so that identical pension plan features will have the same cost in spite of factors such as percentage of women in the workforce or the funding practices of an individual employer. This method allows comparison of pension plan costs, holding constant economic and actuarial assumptions, and demographic characteristics of the workforce.[30]

After representative plans have been defined, cost is estimated so that it can be compared to the cost of the current civil service retirement system. These costs are estimated and compared in order to identify features of different retirement systems that weigh most heavily in determining program costs.

The CRS actuarial model estimates the cost of the current civil service retirement system at 32.2 percent of payroll. For comparison to the cost of private sector and State government systems, the cost was adjusted by subtracting .05 percent of payroll for administrative costs and .45 percent of payroll for benefits to special groups covered by the civil service retirement system (e.g., hazardous duty or Congressional staffs.) Administrative costs were removed because the Hay-Huggins model measures the value of benefits without the administrative costs. Costs for special groups were removed to provide a comparison of benefits available under CSRS to employees who are not entitled to a special formula or special eligibility conditions. This provides a total cost of 31.7 percent of payroll. After subtracting the 7 percent employee contribution, the employer cost of the civil service retirement system for the standard level of benefits was determined to be 24.7 percent of payroll.

The Office of Personnel Management (OPM) has calculated the entry-age normal cost of the current system at 36.5 percent of pay—4 percentage points higher than CRS's estimate. The CRS actuarial model was initially validated against this OPM cost figure. Then the CRS model was modified with economic and demographic assumptions used to estimate the cost of the social security system. Using these assumptions which permitted CRS to estimate the costs of the different retirement systems, including social security, with a common set of actuarial assumptions, CRS calculated the cost of the current CSRS to be 34.2 percent of pay. This figure differs from the OPM cost figures because of different economic and demographic assumptions.

CRS then made a further adjustment to the actuarial data based used by OPM for its cost estimates. This adjustment was necessary because the OPM data included an assumption of promotion patterns in the Federal government that implied substantial "grade creep" over the next 40 years—the actuarial period. (See Appendix

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[30] This method is a simplified version of the computer-based acturial model developed by CRS for the analysis of design options in Chapters 4 and 5. The CRS model allows more detailed analysis of plan features not necessary for the comparative analysis shown here. Data from this simplified normal cost model, called Benefit Value Comparison method, were provided by Hay-Huggins.

C for additional discussion of this subject.) After promotion patterns were adjusted to keep the grade levels comparable to the present, the CRS model estimated entry-age normal cost at a lower 32.2 percent of pay. The OPM assumption about Federal promotion patterns adds 2 full percentage points to the agency's estimate of entry-age normal cost. This cost difference does not greatly affect the analysis of the CRS study, which focuses on relative costs among different types of systems and not on absolute levels.

C. COST COMPARISON OF CURRENT CSRS AND REPRESENTATIVE PLANS

The basic features of the representative private sector and State government retirement systems developed in Chapter 2 of this study are summarized in Tables 3-1 and 3-2. Using the methods described previously, costs for these systems are estimated and are compared to that of the current CSRS. These costs are also compared to the average cost and the range of costs for the 854 plans in a recent study by Hay-Huggins of private sector retirement systems.[31] The study includes this average as a frame of reference to view the costs of the representative plans.

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[31] Appendix A discusses the Hay-Huggins data base, made up largely of corporations with white collar workforces. The employers are drawn from all geographic regions, industry categories, and workforce sizes. The data base includes few small organizations (fewer than 50 employees) but does include the full range of medium, large, and very large employers. For instance, 21 percent of the employers in the data base employ 10,000 or more workers and 16 percent employ 1,000 or fewer.

TABLE 3-1.—CHARACTERISTICS OF REPRESENTATIVE RETIREMENT SYSTEMS—ELIGIBILITY AND ANCILLARY BENEFITS

	CSRS	States		Private sector[1]	
		1	2	1	2
A. Retirement benefits:					
1. Age/service for full benefits	55/30	Any/30	65/5	62/10	65/10.
2. Age/service for reduced benefits.	N/A	55/10	55/10	55/10	55/10.
3. Annual reduction	N/A	6 percent	5 percent	5 percent	4 percent.
B. Pay base	Hi-3	Hi-3	Hi-3	Hi-5	Hi-5.
C. Years for full vesting	5	10	5	10	10.
D. Disability benefit:					
1. Basic benefit	40 percent pay base	Regular benefit formula projected to retirement age.	Regular benefit formula projected to retirement age.	([2])	([2]).
2. Payable	Immediately	Immediately	Immediately	65	65.
3. Years for eligibility	5	5	5	10	10.
E. Survivor benefit before retirement:					
1. Basic benefit	22 percent	50 percent of accrued benefit	50 percent of accrued benefit	50 percent of accrued benefit	50 percent of accrued benefit.
2. Eligibility	1⅓ yrs.	At vesting	At vesting	55/10	55/10.
F. Inflation adjustment (if inflation is 4 percent a year).	4 percent	3 percent	3 percent	1.2 percent	1.2 percent.
G. Employee contribution[3]	7 percent	6 percent	2 percent	None	None.
H. Social security coverage	No	Yes	Yes	Yes	Yes.

[1] Note: Private Sector systems 1A and 2A include a capital accumulation plan in addition to the other provisions of private sector plans 1 and 2. Chapter 2 discusses the details of the capital accumulation plans.

[2] Provided outside of retirement plan through long term disability (LTD) plan, until retirement age when the plan provides benefits based on regular formula projected to retirement age.

[3] For CSRS the employee contribution excludes the 1.3 percent of pay for hospital insurance. State and private employees contribute 6.1 percent of pay for social security in addition to contributions shown in the table. See Appendix C for a discussion of employee contribution rate for social security.

N/A—Not available.

TABLE 3-2.—CHARACTERISTICS OF REPRESENTATIVE RETIREMENT SYSTEMS—BENEFIT FORMULAS

Plan	Formula
1. Civil Service Retirement System	1.5 percent of pay base for first 5 years; 1.75 percent for next 5 years; and 2 percent for remaining years of service. Maximum of 80 percent.
2. State Plan 1	2 percent of pay base for each year of service. No maximum.
3. State Plan 2	1.5 percent of pay base for each year of service. No maximum.
4. Private Sector Plan 1	1.6 percent of pay base less 1.25 percent of Social Security times years of service. Maximum 40 years of service.
5. Private Sector Plan 2	1.0 percent of pay base below the average Social Security maximum taxable wage base plus 1.5 percent of rest of salary base, times years of service. Maximum 40 years service.

The key provisions of the representative private and State retirement systems were analyzed to determine the relative cost of each system. Figures 3-1 and 3-2 show the normal costs of the representative private sector plans (and the average cost from the Hay-Huggins study) compared to the CSRS. Figure 3-3 provides a similar comparison for the representative State systems.

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FIGURE 3-1.—CSRS Compared to Representative Private Plans with Capital Accumulation Plans and to the Hay-Huggins Survey Average: Employer Cost of Retirement Systems Benefits

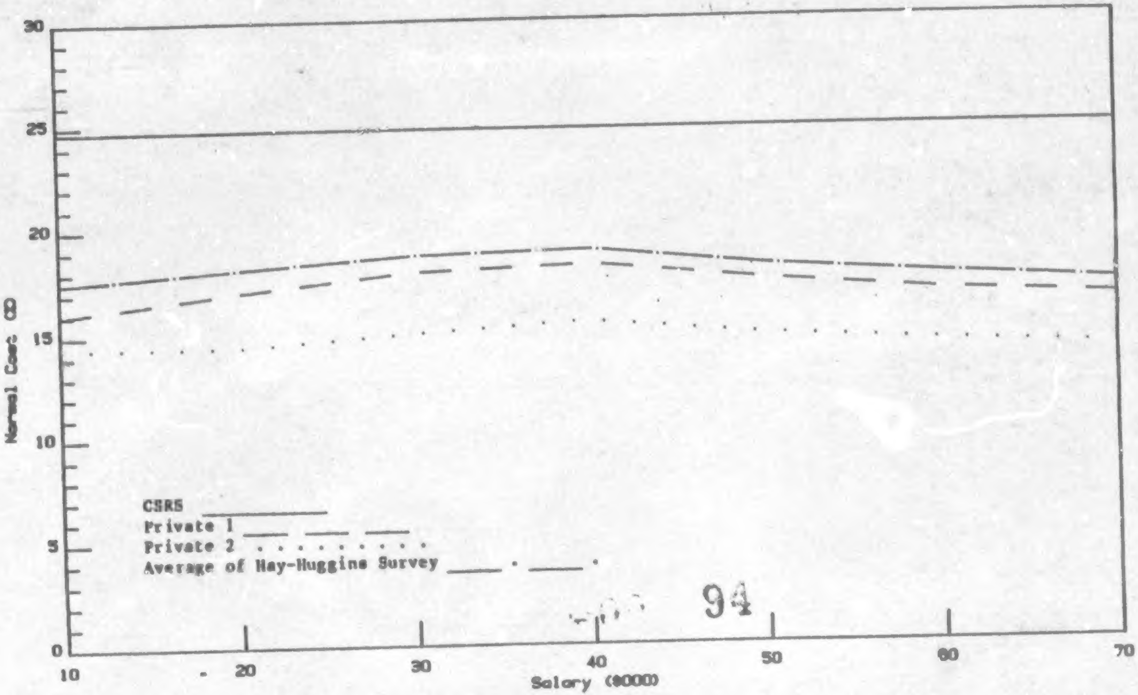

FIGURE 3-2.—CSRS Compared to Representative Private Plans with Capital Accumulation Plans and to the Hay-Huggins Survey Average: Employer Cost of Retirement Systems Benefits

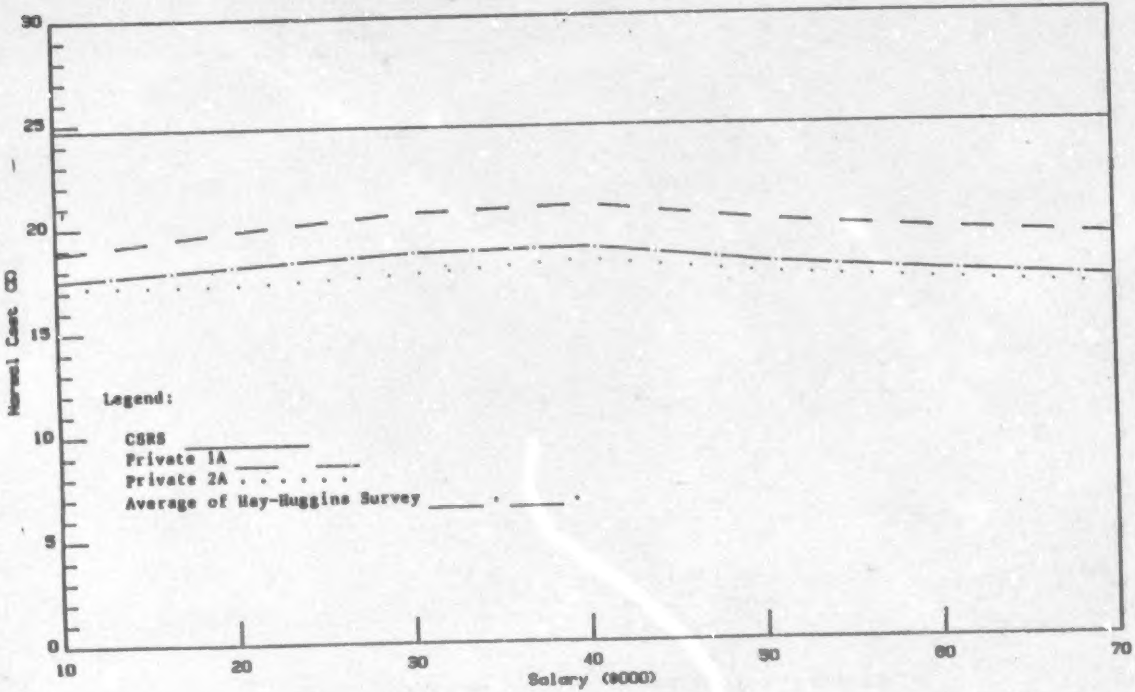

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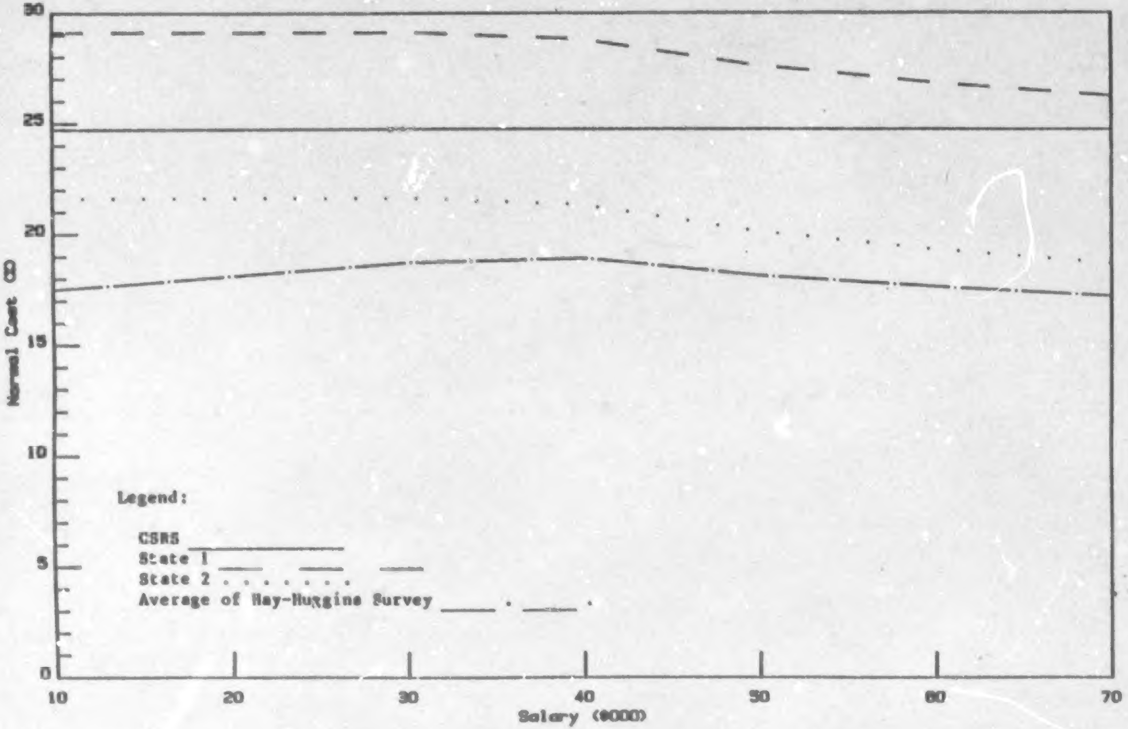
FIGURE 3-3.—CSRS Compared to Representative Private Plans with Capital Accumulation Plans and to the Hay-Huggins Survey Average: Employer Cost of Retirement Systems Benefits



The line representing the relative cost of CSRS on the three charts is horizontal, showing that the normal cost of the CSRS is the same at all salary levels. The costs of the private systems, as a percent of pay, peaks at middle salary levels. Costs of private sector pension systems at mid-salary levels are relatively higher because of the interaction of the maximum taxable wage base for social security and integration of pension benefits with social security.

Figure 3-2 shows that the representative private sector pension systems, not including a capital accumulation plan, are somewhat lower in cost than the average system cost from the Hay-Huggins study.[32] Representative plan 1A, which includes a capital accumulation plan, is above the Hay-Huggins average, and plan 2A is close to average.[33]

Large companies usually sponsor capital accumulation plans in addition to a defined benefit plan. Our analysis of the Hay-Huggins data base indicates that the average cost of the defined benefit pension is practically the same whether or not the company also provides a capital accumulation plan. Furthermore, the data show no correlation between generosity of the defined benefit plan and the type of capital accumulation plan for companies offering both. An employer with a high value pension plan is as likely to have a high value capital accumulation plan as is an employer with a less generous pension plan. Accordingly, all four retirement systems (1, 1A, 2, 2A) can be taken as representative retirement system designs.

Figure 3-3 compares employer costs for CSRS to those for representative State pension systems. The pension plan of the more generous of the two State systems identified in Chapter 2, provides about the same level of retirement income, by itself, as is provided by the current civil service retirement system. Since most State employees also have social security, the total value of benefits is higher than the current civil service retirement system. The conditions for retirement with full benefits of State pension plan 1 are similar to those of the civil service retirement system.

State representative plan 2 is closer in design to the average private sector plan. Employees cannot retire with unreduced benefits until age 65, and the benefit accrual rate is only three-fourths of the more generous representative State plan. Disability and survivor benefits compare favorably to the current civil service retirement system and are, therefore, more liberal than in the average private sector plan. However, private sector plans will have to improve survivor benefits in response to the Retirement Security Act of 1984.

Even with the higher employee contribution rate (6 percent for the State pension plan plus 6.1 percent for social security), State system 1 has a higher employer cost than the CSRS at all salary levels. In cost, State system 2 falls between the average cost from the Hay-Huggins study and CSRS at all salary levels.

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[32] About one-half the plans in the Hay-Huggins study include capital accumulation plans, and their cost is included in the overall average.

[33] Plans 1A and 2A are identical to plans 1 and 2 except that they include a capital accumulation plan in which employers match one-half of employee contributions up to 6 percent of pay.

D. OVERALL AVERAGE RETIREMENT COSTS

Figures 3-1 to 3-3 illustrate the average cost at various salary levels. This comparison is instructive because most systems outside the Federal government reflect the tilt in benefits from the social security system and provide different benefit values at different levels of pay. Benefit costs do not vary by salary groupings in the current civil service retirement system. Rather, this system costs the same, as a percent of pay, for all salary groupings from the lowest of the highest.

The average cost of the current CSRS is identical to the cost of any salary groupings within the system. Calculation of average costs for private sector and State governments, however, requires weighting the costs of salary groupings by the number of employees within each grouping. Table 3-3 shows these average costs, weighted using the actual salary data for Federal employees, and compares them to the current CSRS. In effect, this process estimates the cost of each system for current Federal employees. These costs are employer costs only. State government systems include the cost of social security. Accordingly, employee contributions (e.g., social security, CSRS contributions, State government requirements for employee contributions, and the employee share of capital accumulation plans) were subtracted from total system cost for the comparisons in Table 3-3.

Table 3-3.—Normal Cost Comparisons—(employer cost)

	Percent of pay
Civil Service Retirement System	24.7
Hay-Huggins study:	
25 percent of plans below	14.7
Average	18.3
25 percent of plans above	21.4
Private Sector Systems:	
1 (offset)	17.3
2 (step rate)	14.8
1A (offset with CAP)	19.0
2A (step rate with CAP)	16.5
State Systems:	
1 (more generous)	28.8
2 (less generous)	21.3

NOTE.—Direct comparison of retirement systems of the private sector over-estimates the CSRS value because CRS includes benefits found in private sector insurance programs. These elements are estimated to be worth 1 percent of payroll.

The current CSRS costs 6.3 percent of pay more than the average of private sector pension systems in the Hay-Huggins survey. The CRS representative private sector plans also cost less than the current CSRS, from 5.8 to 9.9 percent of pay less, depending on plan generosity and whether the plan includes a capital accumulation plan.

State government pension systems are more costly than private sector plans and bracket the cost of the current CSRS. The more generous of the CRS representative State system costs 4.1 percent of pay more than the current CSRS while the less generous State system costs 3.4 percent less.

E. ANALYSIS OF COST DIFFERENCES

1. Introduction

The level of initial retirement benefits (including social security) to private sector and current CSRS workers is about the same if they have comparable ages (above age 62), years of service, and salary histories. As shown in Table 3-4, the CSRS costs more because benefits generally increase with the rate of inflation and unreduced benefits are available to retirees at earlier ages. Without these differences, the CSRS would not be more costly than private sector systems.

State government systems are more generouss than private sector plans, and even, for one representative plan, than the current CSRS. Larger accrual rates and availability of unreduced benefits at earlier ages cause the higher State system costs.

Analysis of these cost differences requires estimates of the different features of pension systems. These estimates compare the costs of basic retirement benefits at age 65 including social security but excluding other features such as disability, early retirement, or postretirement adjustments. It is possible, then, to isolate those features of the CSRS that are more generous than corresponding private sector plans.

2. Private sector compared to CSRS

a. Basic retirement benefit.—The basic retirement benefit at age 65 for private pension plans 1 and 2, when coupled with social security, generates costs similar to the costs incurred by the civil service retirement system. The cost of this benefit in the current CSRS is 12.2 percent of pay; one representative private sector plan is 0.2 percent of pay lower and the other is 1.4 percent of pay lower (See table 3-4). Shown another way, the current CSRS replaces about 53 percent of final salary after 30 years of service. The two private sector pensions, by themselves, replace about 30 percent of final earnings which, when coupled with social security, replace about the same 50% average level of earnings. The total private sector accrual percentage is higher at some salary levels, but this is offset by basing private sector plans on high-5 years of salary rather than high-3. The overall cost of providing the basic retirement at age 65 is about the same for the CSRS as for the CRS-developed representative private sector systems.

b. Pre-age 65 retirement.—Retirement before age 65 with unreduced benefits adds considerably to the cost of CSRS benefits compared to those in the private sector. CSRS unreduced retirement benefits can begin at age 55 with 30 years of service but private sector employees must wait until age 62 (in plan 1) and age 65 (in plan 2) for unreduced benefits. This feature adds 2.8 percent of pay to the cost of the current CSRS, compared to an additional cost of 0.8 percent of pay for the private plan that allows unreduced benefits at age 62.

TABLE 3-4.—COMPARISON OF COST COMPONENTS: CSRS AND REPRESENTATIVE PRIVATE SECTOR SYSTEMS

[In percent]

	Current CSRS	Private 1	Private 2
Basic benefit payable at age 65	12.2	12.0	10.8
Vesting	1.1	2.5	2.4
Pre-age 65 retirement	2.8	.8	.0
Disability benefit	1.9	1.7	1.6
Survivor and family benefit	2.1	1.7	1.6
Total before indexing	20.2	18.7	16.5
Indexing	+11.5	+4.6	+4.4
Total after indexing	31.7	23.3	20.9
Employee contribution	−7.0	−6.1	−6.1
Employer cost	24.7	17.3	14.8
Capital Accumulation Plan (systems 1A and 2A only)	+.0	+1.7	+1.7
Total employer cost	24.7	19.0	16.5

Note.—Totals may not add due to rounding.
Note.—Because plan features are interdependent, the cost assigned to each benefit would change if the order of the features were varied.

c. Ancillary benefits.—Pension systems ordinarily include benefits for disability and survivors. They are higher in the current CSRS and accordingly cost more than they do in private sector systems.

CSRS disability benefits cost relatively more becuase they use a more liberal definition of disability. The CSRS definition requires that employees be unable to perform their specific jobs. Private sector employees generally use the social security disability definition, requiring that individuals be unable to perform any job in the national economy.

Survivor benefits provided by CSRS cost more than combined survivor benefits from social security and the private sector pension plan. CSRS benefits are more costly because:

—CSRS provides preretirement death benefits to survivors of deceased employees with 18 months of service and without regard to the employees' ages. The representative private pension plans pay no preretirement survivor benefits unless the deceased worker had reached his 55th birthday and worked at least 10 years. (The recently enacted Retirement Security Act will change this to coverage after vesting.)

- —If an employee elects to provide a postretirement survivor benefit under CSRS, the basic pension at retirement is reduced by less than a full actuarial reduction (in effect the entire system subsidizes part of the cost of the survivor benefit). Private sector pension plans are permitted to ERISA to apply a full actuarial reduction (no additional employer cost) to compute the survivor benefit.

CSRS survivor benefits are more costly than those available to protect survivors of private sector employees, even though social security is an added cost for private sector systems.

d. *Vesting.*—Employees earn a vested right to pension benefits after a particular number of years of service. Once vested, they will not lose benefits even though they leave the particular employer before becoming eligible for unreduced or reduced benefits. The value of these vested benefits adds to the total cost of a pension system. Vested benefits in the private sector are more valuable, and cost more than they do in the current CSRS.

Employees who leave Federal employment (after vesting but before they are eligible for a benefit) and withdraw their contributions to the CSRS forfeit their rights to vested benefits (including those financed by the government).[34] In the private sector, ERISA requires that employees who terminate employment after vesting, but before benefit eligibility, retain rights to the employer-funded benefits. Private sector employees retain the rights to their vested benefits while CSRS covered employees often forfeit the employer-paid portion of vested benefits. The loss of CSRS vested benefit rights lowers the cost of this system in comparison to the private sector systems. In addition, private sector employees are covered by social security, which is fully portable and nonforfeitable.

e. Inflation protection.—The civil service retirement system benefits generally increase with the rate of inflation while private plan benefits do not. This feature accounts for most of the cost difference between CSRS and private sector systems. Social security benefits also are generally increased at the rate of inflation, but private pensions were indexed only about 30 percent according to experience in a recent period. The inflation adjustments in the CSRS, combined with this system's early retirement provisions, cost 11.5 percent of pay—about 7 percent of pay more than the private sector plans.

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[34] This forfeiture is a provision of law and not necessarily a logical consequence of withdrawing employee contributions. Theoretically, this proviso of law could be changed to allow employees to retain the right to the employer-funded portion of their vested benefits, even if they withdraw their own contributions.

f. Employee contributions.—Employee contributions under CSRS are slightly higher than the private sector employee's contribution to social security. Subtracting employee contributions from the total system cost results in the employer-paid share of civil service retirement system costing 7.4 percent of pay higher than in the private sector system 1 and 9.9 percent of pay higher than in the private sector system 2.

g. Capital accumulation plans.—When capital accumulation plans are included, private sector systems 1A and 2A increase in value but are still less costly in total than CSRS. The employer cost of the capital accumulation plans is 1.7 percent of pay. Only employees choosing to participate receive any benefit from a capital accumulation plan.

3. State systems compared to CSRS

a. Basic Benefit at age 65.—The basic unreduced benefits provided by State government systems cost more than those under the current civil service retirement system. (See Table 3–5.) State pension plan 1 provides 2 percent accrual for each year of service compared to the average 1.87 percent provided by civil service (30 years of service). State pension plan 2 provides 1.5 percent pay. State plans both have social security benefits added on to the basic pension.

TABLE 3–5.—COMPARISON OF COST COMPONENTS: CSRS AND REPRESENTATIVE STATE SYSTEMS

[In percent]

	CSRS	State 1	State 2
Basic benefit payable at age 65	12.2	17.2	13.9
Vested benefits	1.1	3.1	3.0
Pre-age 65 retirement	2.8	3.0	.0
Disability benefit	1.9	3.4	2.7
Survivor and family benefit	2.1	2.3	2.1
Total before indexing	20.2	29.0	21.9
Indexing	+11.5	+11.8	+7.6
Total after indexing	31.7	40.9	29.4
Employee contribution	−7.0	−12.1	−8.1
Total employer cost	24.7	28.8	21.3

Note.—Totals may not add due to rounding.

Note.—Because plan features are interdependent, the cost assigned to each benefit would change if the order of the features were changed. Employer cost of the current CSRS includes a deduction of 0.5 percent of pay—the cost of administration and payment of benefits to special groups. These deductions are necesary to ensure comparability of estimates with other pension plan costs.

b. Pre-age 65 retirement.—State pension plan 1 permits retirement with full benefits at any age with 30 years of service. Because relatively few employees achieve 30 years of service and retire before age 55, and because social security is not available until age 62, this provision is only slightly more costly than CSRS. State plan 2 does not permit retirement with full benefits until age 65 and, therefore this feature is less costly than the CSRS. Both State plans permit voluntary retirement with reduced benefits before the normal retirement age, while CSRS has no comparable provision.

c. Vested benefits.—The cost of employees' vested benefits is greater for the two representative State systems than for CSRS. The higher cost is due to two factors. In both the CSRS and the two State systems, employees who withdraw their contributions when they leave employment forfeit the employer-financed vested benefit. The State systems, however, return the employer contributions with interest, the CSRS does not. Also, State employees are covered by social security, which is fully portable.

d. Ancillary benefits.—Disability benefits are more costly for both State retirement systems than for CSRS. The representative State pension plans use a definition of disability comparale to CSRS. State plan disability benefits are calculated using the basic retirement benefit formula (accrual rate x years of service x compensation base) with the disabled employees' years of service projected to the normal retirement age. On average, this method yields a benefit that is 40–50 percent of base pay, compared to an average of about 40 percent for CSRS. State employees also are eligible for social security disability benefits.[35] The disability benefit of State retirement system 1 is more costly than State retirement system 2 because its basic retirement benefit formula is more generous.

Survivor benefits cost about the same under the State plans as they do under CSRS. Because survivor benefits are dependent, in part, on the basic retirement benefit formula, State retirement system 1, with its 2 percent accrual rate, costs slightly more than the other systems.

e. Inflation protection.—Indexing has a mixed impact on the relative costs of CSRS and the representative State systems. Both State pension plans index their benefits at 1 percent below the 4 percent inflation assumption used in this analysis. The lower rate of indexing is more than offset under plan 1 because indexing is applied to a higher basic retirement benefit. For State pension plan 2, the cost of indexing is lower than for CSRS because indexing is at a lower rate and tends to be applied over a shorter period since employees must wait until age 65 to receive unreduced benefits.

f. Employee contributions.—Employee contributions, including social security, under State system 2 are only 1 percent of pay higher than CSRS, but the State system 1 contribution is substantially higher, thereby removing much of the employer cost difference between this State plan and civil service.

The total cost of benefits under the more generous representative state plan is 40.9 percent of pay—9.2 percent of pay, or nearly 30 percent greater than the current CSRS. However, employees under this State plan pay a contribution of 12.1 percent of pay (6.1 percent for social security plus 6.0 percent for the State pension, compared to CSRS's 7.0 percent.) This reduces the cost to the State as employer to 4.1 percent of pay more than the CSRS.

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[35] Employees receiving State pension plan disability benefits do not always receive a social security disability benefit due to social security's stricter definition of disability.

III. REPLACEMENT RATE ANALYSIS

A. INTRODUCTION

Replacement rates measure the level and distribution of retirement income relative to preretirement earnings, and they are used throughout this study to analyze and compare retirement systems. Replacement rates will be used in Chapters 4 and 5 to show distributional effects of a new retirement system compared to the current system. The distribution differs because social security, with its benefit formula tilt, replaces more income for lower income workers than for higher income workers. The current civil service retirement system includes no redistributional features.

Replacement rates are simple and straightforward. They are calculated by dividing workers' retirement benefits by preretirement earnings. Though simple in concept, calculations and their interpretations are difficult in practice. These difficulties are usually caused by inadequate data.

1. Gross and net replacement rates

President Carter's commission to study retirement income programs concluded that "the replacement of preretirement disposable income from all sources [was] a desirable retirement income goal."[38] The Commission developed rough data to show that replacement rates necessary to maintain a constant standard of living were lower for higher income workers than for lower income workers. After adjusting for changes in tax liability, work-related expenses, and savings and investments, the Commission estimated that in 1980 retirees needed to replace from 51 to 86 percent of before-tax final earnings, depending on income and marital status.

This chapter, analyzing retirement systems as they now exist, uses both gross and net replacement rates in its analysis to show retirement income generosity and distribution across the salary scale. Chapters 4 and 5, on the other hand, present analysis of options for designing a new Federal retirement system for workers, many of whom will not retire until well into the next century. For this analysis, only gross replacement rates are used because development of net replacement rates for a period 40 years in the future would require assumptions about changes in current Federal tax laws to make the analysis meaningful. Furthermore, gross replacement rates are sufficient for a comprehensive examination of the analytical issues for the new design of a Federal retirement system. Net replacement rate analysis in this chapter only takes into consideration changes in tax liability and any direct payments made by workers to the pension system. Because of the lack of reliable data on consumption expenditures, such as work-related expenses and savings, they are excluded from the analysis.[37]

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[38] Coming of Age: Toward a National Retirement Income Policy. President's Commission on Pension Policy. 1981.

2. Replacement rate methodology

Replacement rates provide a powerful analytical device, and they are used extensively throughout the study. They permit analysis of benefit generosity and distribution. The analysis shows differences by: (1) income class, (2) real benefits over time, and (3) retirement age.

This chapter analyzes replacement rates for the representative private sector and State government pension systems identified in Chapter 2. Both representative private sector plans integrate their benefit formulas with social security; the two State plans do not. Major private sector companies usually offer a capital accumulation plan in addition to the basic defined benefit pension plan. Replacement rates in this chapter include the effects of a capital accumulation plan as if it had been offered and employees had participated *fully* during their working years.

a. Analytical Framework.—Retirement income is usually analyzed only at the time of retirement. The replacement rate model developed by CRS goes well beyond this to estimate retirement income both before and after taxes at various years after retirement and compares that with today's standard of living. This CRS model shows how benefit levels may be eroded by inflation and changes in tax liabilities.

Federal workers may retire at age 55 with unreduced benefits. While State and private sector workers also may retire early, social security benefits—a major component of retirement income—are not available until age 62. The differences in tax treatment of employee contributions to the retirement systems also cause changes in net replacement rates that affect the comparison at different points in time. A retiring Federal worker's initial *net* replacement rate drops significantly within one to two years after retirement when the benefit changes from "tax free" income, while retirees are recouping the amount of the contributions, to fully taxable income. Although this tax change affects State retirees, who also may pay pension contributions, it does not affect private sector workers in the representative plans, because they usually do not contribute directly to the cost of the pension and so must pay taxes on pension benefits from the beginning. One-half of social security benefits is not taxable, however, and the portion of the other half that can become taxable depends on the degree to which the combination of adjusted gross income and one-half of social security benefits exceeds threshold amounts ($25,000 for single individuals and $32,000 for couples). Thus, under current tax laws social security's value in terms of net replacement of income is higher than most forms of pension income.[38]

Both gross and net replacement rates for workers retiring before age 62 under the State and private plans will change significantly when social security benefits begin. A slight change in tax liability occurs under all systems at age 65, when retirees become entitled to an additional income tax exemption. Changes in replacement rates occur each year in retirement for plans that do not fully adjust benefits for price inflation. This analysis therefore looks at net replacement rates over the retirement years because many changes occur with time. Initial replacement rates are only the starting point.

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[37] See Appendix C for a full discussion of the CRS replacement rate model, and for an explanation of some difficulties with the net replacement rate concept for a period 40 years into the future.

[38] For a brief discussion of the tax treatment of private pension plans, see Appendix A.

b. Age-service combinations selected.—To illustrate the replacement rates under the various retirement systems for workers retiring in 1985, it is necessary to select various combinations of age and years of service. To keep the presentation manageable, five combinations of age and service were selected—55/30, 62/20, 65/10, 65/30, and 65/40.

Federal workers are first eligible for optional retirement under CSRS at age 55 with 30 years of service. About one-third of workers who become eligible at age 55 retire within one year. This combination of age and service is a benchmark for comparing replacement rates under the present system with those under any of the State and private systems. The 65/10 combination shows replacement rates for short-service workers. The 62/20 combination illustrates the effect on replacement rates when reduced social security benefits begin. The 65/30 combination illustrates the replacement rates received by career workers with unreduced benefits. Although replacement rates for an age 65/40 year combination are included to show the full potential of participating in the different retirement arrangements, relatively few persons work that long for one employer. The replacement rate tables for the five age/service combinations are included in Appendix D.

c. Effect of capital accumulation plan on replacement rates.—Many private sector workers have the option to participate in a capital accumulation plan. As shown in Chapter 2, workers contribute to the capital accumulation plan with either pre-tax dollars (e.g., 401(k) plan) or post-tax dollars (e.g., thrift or savings plan). Workers participating in a capital accumulation plan obtain a higher postretirement replacement rate in exchange for less disposable income during the time they pay into the plan.[39] The after-tax cost of contributions to a 401(k) plan is lower for workers with higher marginal tax rates.

Voluntary participation in the capital accumulation plan over a long working career significantly increases gross and net replacement rates. This is for two reasons: (1) the 6 percent of salary saved by the worker participating in the capital accumulation plan, along with the employer matching contribution (3 percent of salary) and earnings on the fund balance, are paid back as retirement income, thereby increasing the numerator of the replacement rate, and (2) workers who elect to defer receipt of compensation will lower their preretirement spendable income throughout their working life, thereby reducing the denominator. Comparing the replacement rates of two private sector retirees with the same gross salary shows that the one in a capital accumulation plan will have a significantly higher replacement rate, but at the expense of lower preretirement spendable income. The small change in tax liability—lower income taxes as a worker and higher taxes as a retiree—does not affect this overall result. Earnings replacement rates shown in this study for the current CSRS do not take into account anticipated retirement income from voluntary savings of workers. The current CSRS does not provide for employer contributions to employee savings plans. A Federal worker who voluntarily saved 6 percent of pay would increase his earnings replacement rate above that shown on the charts. However, he would have to save 9 percent of pay to equal the increase in retirement income available to a private worker whose employer offers to contribute 3 percent of pay (one-third of the total) to the capital accumulation plan.

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[39] The voluntary capital accumulation plan used for this analysis is treated for tax purposes as a 401(k) plan. (See Appendix A for a further discussion of capital accumulation plans.) The analysis does not deal with the possibility that individuals might merely reduce other savings by the amount contributed to the capital accumulation plan. Instead, the analysis treats them as if their contributions to the capital accumulation plan were additional savings, or, in other words, forgone current consumption.

d. Assumptions for replacement rates.—Replacement rates shown in the following graphs in this chapter and the tables in Appendix D assume the following:

(1) Married workers always take their pension benefit in the form of a joint and survivor annuity. This reduces the earnings replacement rate for married workers compared to similar single workers.

(2) Married workers receive a full spousal social security benefit, thereby increasing the social security benefit by 50 percent. This is especially significant to lower paid workers because of the weighting of the social security benefit in their favor. (See Figure 3-4.)

(3) Workers participating in the voluntary capital accumulation plan participate fully during their entire period of service. The plans are designed as 401(K) plans and, therefore, the employee contribution is not taxed currently. Such plans must satisfy IRS tests that specify the amount that may be deferred by the higher paid one-third of workers in relation to the amount actually deferred by the lower paid two-thirds. The replacement rate from an annuity bought with the voluntary capital accumulation account balance declines over time by the rate of inflation since the benefit is unindexed.

(4) Interest rates on the accumulated contributions in the voluntary capital accumulation plan are compounded annually using historical interest rates earned each year from 1944-1984 by participants in the Teachers Insurance Annuity Association (TIAA) defined contribution plan. Since it is the largest private sector defined contribution plan, it is representative of past interest rates earned by large numbers of workers. Different interest rates, salary growth and participation rates would change the value of the capital accumulation plan.

(5) Gross replacement rates under the capital accumulation plan are the same for workers with the same amount of service and retirement age but with different starting salaries since salary growth and interest rates are assumed to be the same.

(6) Inflation over the postretirement period is 4 percent. Private pensions are adjusted during the postretirement period by 30 percent of the increase in the CPI. State plans place a 3 per-

cent limit on the cost-of-living adjustment. Social security and CSRS benefits are fully indexed and adjusted annually.

(7) Salary increases each year are based on average salary growth and estimated promotional patterns.

B. GROSS REPLACEMENT RATES AT RETIREMENT

This section shows (1) the effect of marital status on social security and CSRS benefits and (2) gross replacement rates at the time of retirement for career workers retiring at age 65 with 30 years of service.[40]

1. Effect of marital status on social security and CSRS benefits

At age 65, workers may retire with full social security benefits. Figure 3-4 illustrates not only that social security benefits are weighted in favor of lower paid workers, but also that civil service benefits replace the same proportion of final earnings for all workers with the same amount of service. This figure also shows how the social security tilt is increased for married workers who are eligible for the 50 percent spousal benefit.[41] In the case of CSRS, however, married workers would have their benefits reduced by 5 to 9 percent to provide survivor protection. This reduction is to help pay for the cost of extending the pension over the expected lifetime of two individuals.

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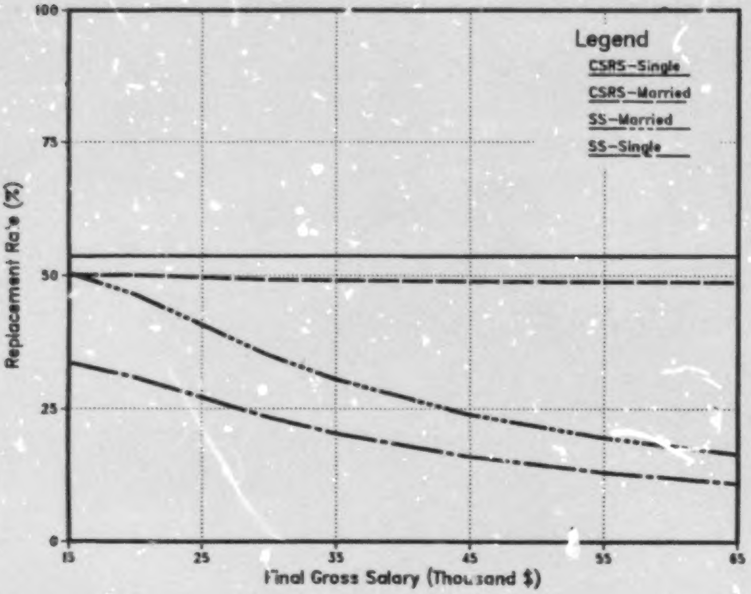
[40] Gross replacement rates for the various systems using the different age/service combinations for both single and married persons are shown in Appendix D.

[41] Many spouses receive social security benefits based on their own employment. In this case, the spouse benefit is only a guarantee that the combined social security benefit will be at least 50 percent greater than if the worker were single. Because the spouse benefit is often elected before age 65 and is subject to slightly greater reductions for early receipt, in practice it is often slightly less than 50 percent of the primary worker benefit.

FIGURE 3-4.—Gross Replacement Rates for CSRS and Social Security—Single and Married Employees Age 65 With 30 Years of Service



2. Gross replacement rates for career workers

Figures 3-5 and 3-6 show the extent to which gross final earnings would be replaced under the representative State and private systems (social security plus pension) for career workers retiring at age 65 with 30 years service. These are compared, on each figure, to the gross replacement rates for CSRS. Figure 3-5 shows that persons with final earnings all the way up to $65,000 would do better at the point of retirement under both State systems than they would under the current CSRS. Since these State systems are "add-on" plans, computed independently of social security, the overall replacement rates maintain the tilt of the social security benefits illustrated in figure 3-4. State system 2, which is less generous, replaces about the same final earnings for the $65,000 workers as CSRS, but provides substantially higher replacement rates for workers with lower earnings.

FIGURE 3-5.—Gross Replacement Rates for State Systems 1 and 2—Single Employee Age 65 With 30 Years of Service

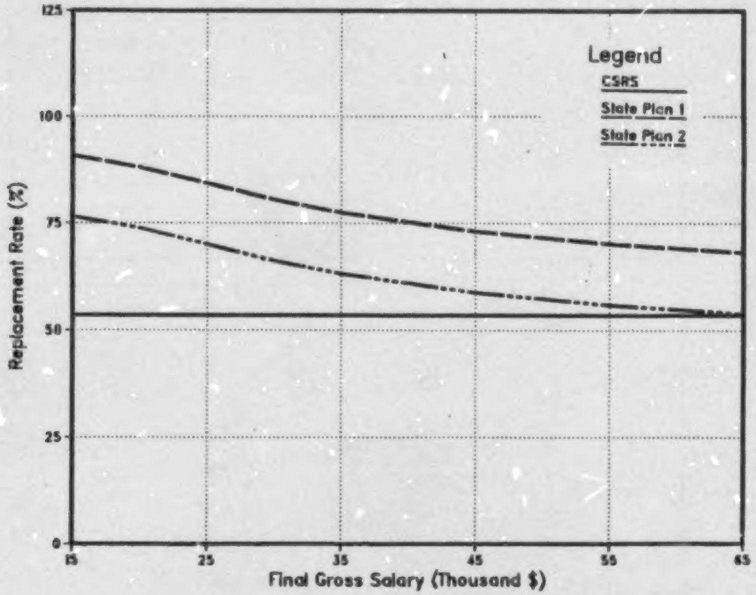
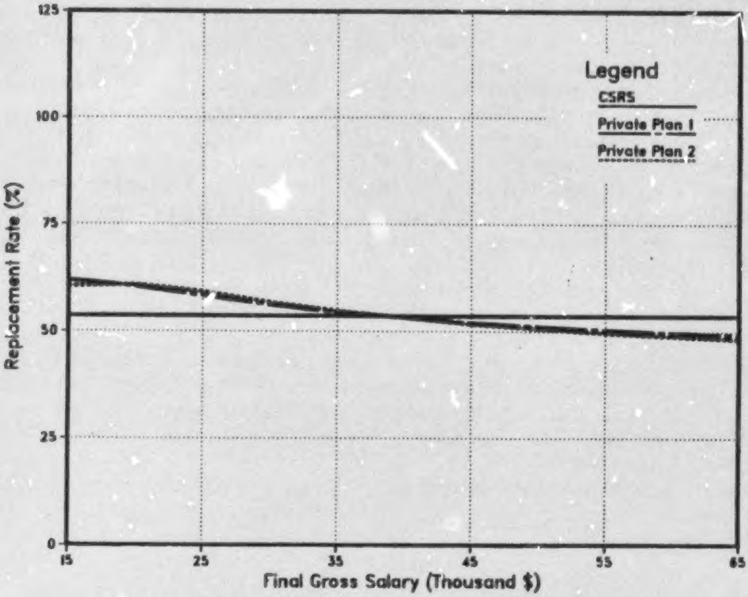


Figure 3-6 shows replacement rate distribution for the two representative private systems (without a capital accumulation plan). Both private systems follow almost the same distributional curve even though one provides an offset plan and the other a step-rate plan. Social security benefits are taken into account explicitly in offset plans and implicitly in step-rate plans. Both private systems provide higher gross replacement rates than CSRS for workers with final earnings up to about $40,000. From that point on, CSRS provides slightly higher replacement rates. However, most Federal retirees in FY 1983 had final earnings below $40,000.

FIGURE 3-6.—Gross Replacement Rates for Private Systems 1 and 2—Single Employees Age 65 With 30 Years of Service



Since the two private plans are integrated with social security and provide benefits tilted in favor of the higher paid workers, the distributional curve is flatter than for the two State systems shown in Figure 3-5. The combined social security and pension benefits under the private systems maintain part of the social security tilt and still yield higher earnings replacement rates to lower paid workers.

3. Effect on capital accumulation plans on replacement rates

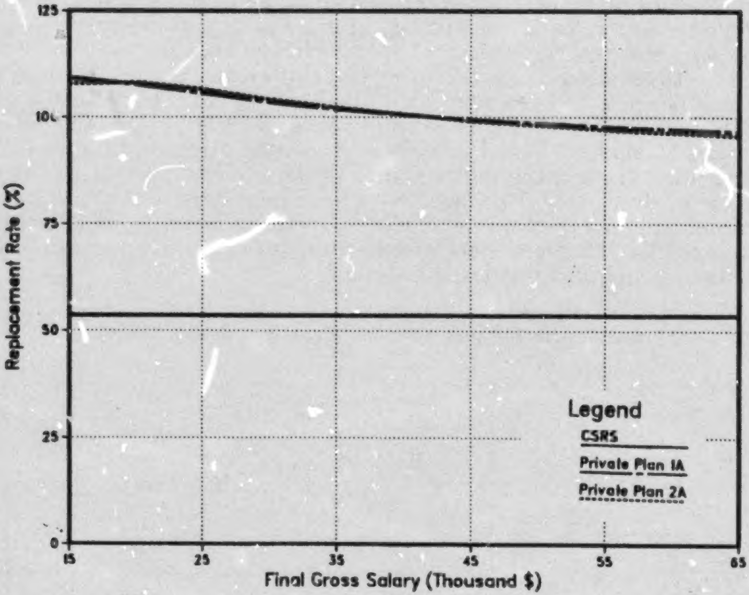
A growing number of private sector retirement systems include company-sponsored capital accumulation plans. Analysis comparing cost and replacement rates of representative private sector plans to those of the current CSRS have therefore included capital accumulation plans as part of the benefits package available to private sector employees. The analysis of options for a new Federal retirement system (Chapters 4 and 5) also considers the effects of these savings plans on retirement system costs and on employee benefits.

Addition of capital accumulation plans to an overall retirement system increases replacement rates substantially. This is because recent high interest rates cause large increases in benefits from these capital accumulation plans. For the private sector/current CSRS comparison, workers are assumed to retire at the end of 1984 and an interest rate of 10.6 percent—very high by historical standards—was used to convert the account balance into an annuity. Monthly annuity payments are very sensitive to this interest rate assumption.

Although capital accumulation plans are relatively new as a major feature in many retirement systems, this analysis assumes that the plans have been in effect during the workers' entire work life and that the workers participated fully each year by contributing 6 percent of pay. Thus the rates shown should be considered to be an upper limit of what is possible, rather than what is likely.

Figure 3-7 shows the substantial increase in gross replacement rates if a worker participates fully in the capital accumulation plan over the entire 30 years. The initial benefit provided by the capital accumulation plan when added to social security and the private pension, replaces over 100 percent of gross earnings for workers with final earnings up to $65,000. (Net replacement rates would be even higher.) If workers did not participate in all years, had slower salary progressions, earned lower interest rates, or did not contribute the full 6 percent of pay, replacement rates from the capital accumulation plan would be lower. The higher replacement rate achieved by participation in the capital accumulation plan comes partly at the expense of lower preretirement consumption. (The pension component in representative system 1 is the same as system 1A, except that the latter includes a voluntary capital accumulation plan. The same rule holds true for private systems 2 and 2A.)

FIGURE 3-7.—Gross Replacement Rates for Private Systems 1A and 2A—Single Employee Age 65 With 30 Years of Service



C. REPLACEMENT RATE ANALYSIS DURING RETIREMENT

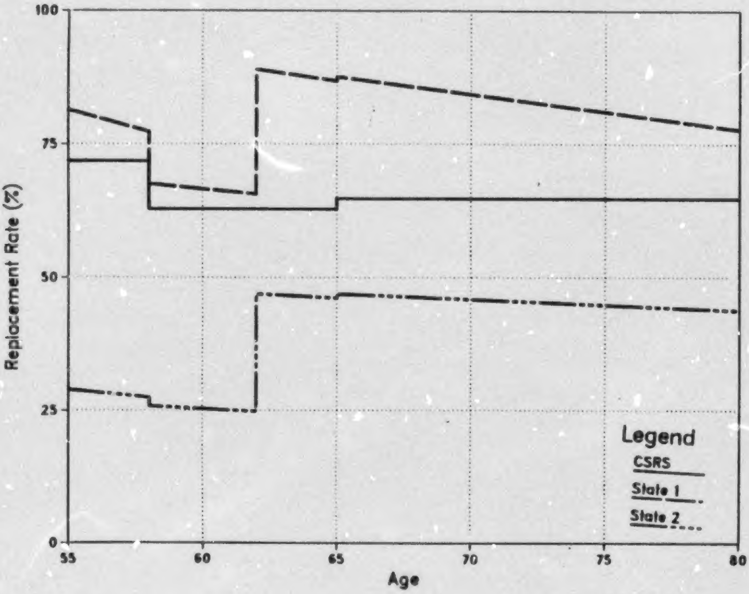
Because of limitations in examining replacement rates solely at the point of retirement, the rest of this chapter discusses changes occuring over time emphasizing *net* replacement rates. Net replacement rates reflect differences in tax treatment of pre- and postretirement income. Key ages at which net replacement rates are examined are as follows:

Age	*For workers retiring at age 55*
55	Initial annuity starting date. Benefits under contributory defined benefit plans are not taxable yet.
58	Usually benefits under contributory plans would become fully taxable.
62	Reduced social security benefits become available.
65	Additional personal income tax exemption becomes available.
55 to 80	Benefits that are not fully indexed are eroded by inflation.

Figures 3-8 through 3-12 and Table D-1 in Appendix D show the effect of these factors for single workers in different years of the postretirement period under CSRS and under each of the representative private sector and State government systems.

Figure 3-8 compares net replacement rates under CSRS and the State systems for a single person who retired at age 55 with 30 years of service and final salary of $30,000.[42] At retirement, State plan 1, together with social security, provides a net replacement rate of about 81 percent, compared to 72 percent for CSRS. When replacement rates are calculated at age 58, they drop sharply. Age 58 was selected for computational purposes because by this time the retirees have fully recouped their after-tax contributions and their pension benefits are fully taxable. Actually, participants in State system 1 receive their contributions back in benefits after about 11 months. This takes about 8 months under State system 2 and about 14 months under CSRS. CSRS and State system 1 compare fairly closely from age 58 to 62. From age 58, the CSRS replacement rate remains at about 63 percent because benefits are indexed for inflation. State system 1 erodes gradually because benefits are only partly indexed to inflation.

FIGURE 3-8.—Net Replacement Rates for State Systems 1 and 2—Single Employee Age 55 With 30 Years of Service, Final Gross Salary: $30,000



The two State plans in our illustrations are actually indexed by three-quarters of the rise in inflation since our postretirement inflation rate assumption is 4 percent and the State plans are assumed to cap their cost-of-living adjustment at 3 percent. A higher inflation rate assumption would cause further erosion in the value of the State plan benefits. The two illustrative private plans are assumed to adjust benefits by 30 percent of the rise in the CPI, regardless of what inflation actually is.

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[42] Net replacement rates for single and married workers at other final salary levels are shown in Appendix D.

At age 62, the net replacement rate under State system 1 jumps to nearly 90 percent because social security benefits become available to the retiree. Net replacement rates also increase slightly under all systems at age 65, when Federal income taxpayers qualify for an additional exemption. Thereafter, inflation erodes the State system 1 replacement rate down to 78 percent at age 80. The State system 1 retiree at age 80 still has a higher net replacement rate than the CSRS retiree, by about 20 percent. State system 2 follows a similar pattern to State system 1, except that it begins at around 29 percent at age 55 and ends at about 44 percent. At age 80, the State plan 2 retiree's replacement rate would be about 32 percent below that of the CSRS retiree.

Figure 3-9 compares net replacement rates under CSRS and private systems 1, 2, 1A, and 2A for a single person who retired at age 55 with 30 years of service and final salary of $30,000. If a worker covered by private system 1A or 2A did not participate in the capital accumulation plan, the replacement rates would be the same as those provided by private sytems 1 and 2. It should be noted that two-thirds of the area between the bottom replacement rate curve (private systems 1 and 2) and the top curve (private systems 1A and 2A) is the result of the 6 percent voluntary employee contributions made to the capital accumulation plan. Federal and State workers in our analyses are assumed not to save additional amounts for retirement since no employer-matched savings plan is offered. If only benefits derived from the 3 percent employer matching contribution to the private sector capital accumulation plans were shown together with the pension and social security, net replacement rates under private systems 1A and 2A in figure 3-9 would be lower than CSRS at every age level for a $30,000 earner choosing early retirement.

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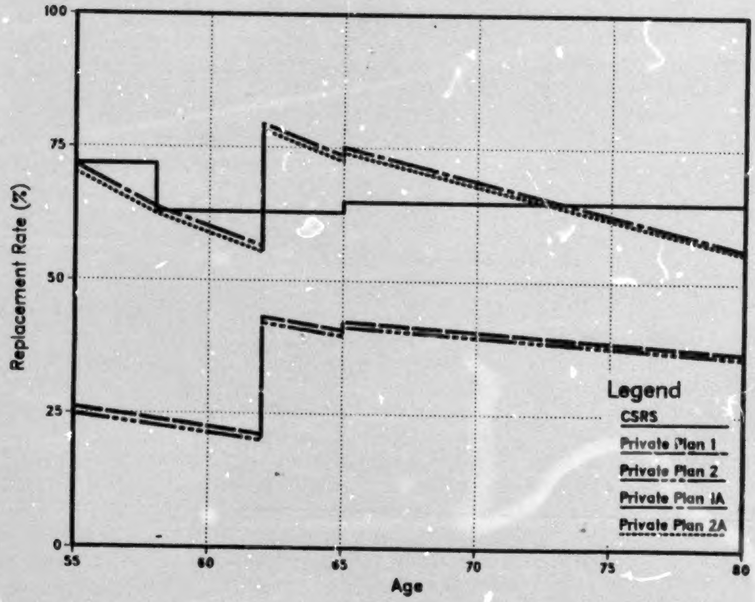
FIGURE 3-9.—Net Replacement Rates for Private Systems—Single Employee Age 55 With 30 Years of Service, Final Gross Salary: $30,000



While starting at about the same level, after private plans 1A and 2A retirees begin receiving social security at age 62, their net replacement rates exceed those of CSRS until age 73, but inflation continues to erode the private benefits after this period to levels below CSRS. At age 80, replacement rates under private systems 1A and 2A are about 14 percent lower than those of CSRS. Since the capital accumulation component is unindexed, the replacement rate curve for systems 1A and 2A declines more steeply than for private systems 1 and 2.

Figure 3-10 compares CSRS to State systems 1 and 2 for a single person who retired at age 65 with 30 years of service and a final salary of $30,000. In these cases, the two State systems provide higher net replacement rates than CSRS. First, unreduced social security benefits are available at age 65. Second, benefits under the State plans are not actuarially reduced for early retirement as they would be for a worker retiring before age 65. State system 1 begins about 60 percent higher than CSRS and declines to about 45 percent higher at age 80. State system 2 follows a similar path, but begins at about 24 percent higher.

Figure 3-10.—Net Replacement Rates for State Systems 1 and 2—Single Employee Age 65 With 30 Years of Service, Final Gross Salary: $30,000

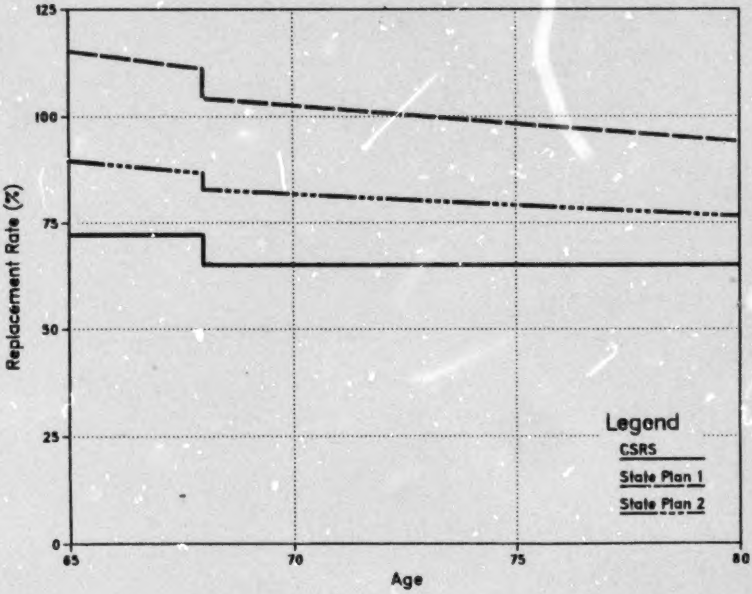


Figure 3-11 compares CSRS and private systems 1 and 2 for a single person who retired at age 65 With 30 years of service and a final salary of $30,000. The private systems are nearly identical. After the CSRS retiree recoups his after-tax contributions and his benefits become fully taxable, the replacement rate drops slightly below the private system's until age 73, when they all are about 65 percent. Inflation continues to erode the private benefits so that at age 80 they are about 8 percent below those of CSRS.

FIGURE 3-11.—Net Replacement Rates for Private Systems 1 and 2—Single Employee Age 65 With 30 Years of Service, Final Gross Salary: $30,000

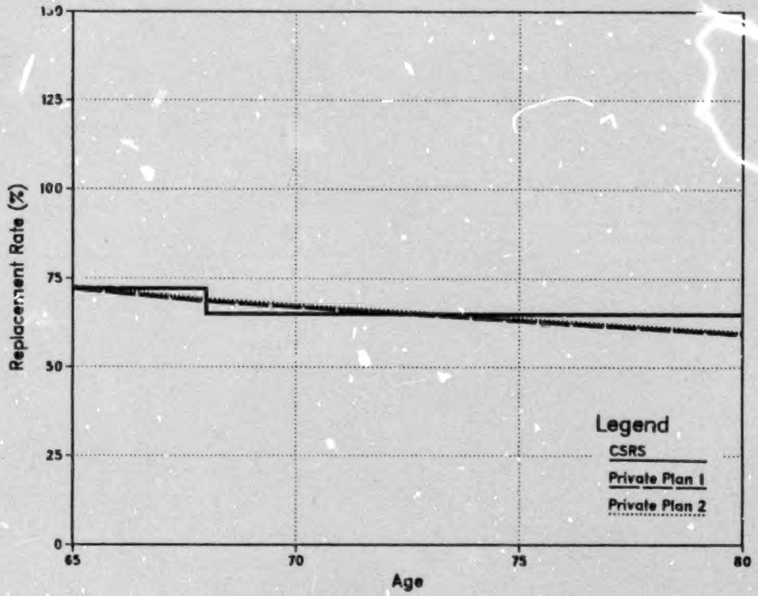
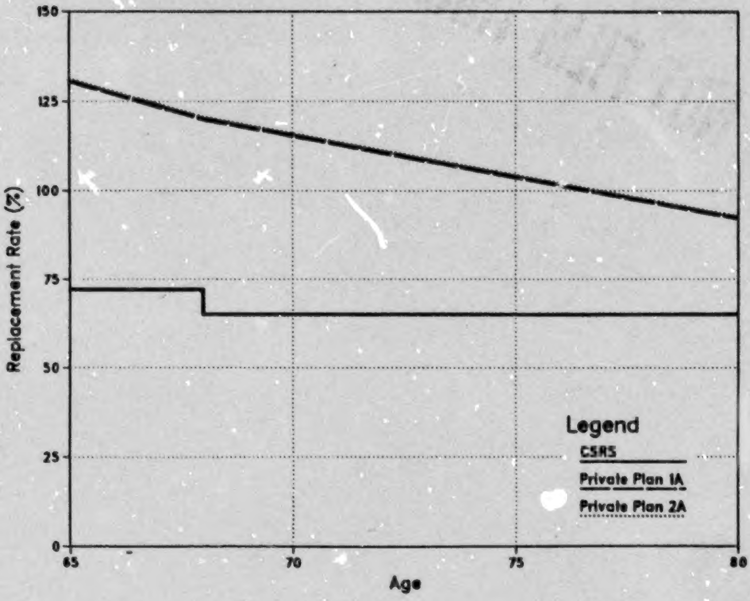


Figure 3-12 compares CSRS and private systems 1A and 2A for a single person who retired at age 65 With 30 years of service and a final salary of $30,000. The replacement rates from the private systems which include a supplemental capital accumulation plan to which the employee contributes 6 percent of pay are nearly identical. Inflation erodes the private systems, however, from an initial net replacement rate of about 130 percent to about 92 percent at age 80. The net replacement rates at age 80 still exceed CSRS, however, by about 42 percent. Even if just the 3 percent employer matching contribution were taken into consideration, net replacement rates for the private sector workers retiring at age 65 with $30,000 final earnings would still exceed CSRS.

FIGURE 3-12.—Net Replacement Rates for Private Systems 1A and 2A—Single Employee Age 65 with 30 Years of Service, Final Gross Salary: $30,000



CHAPTER 4: ANALYSIS OF DESIGN ISSUES FOR A NEW FEDERAL RETIREMENT SYSTEM

I. INTRODUCTION

In the preceding chapters, pension practices common to employment outside the Federal Government were identified, and their costs and benefits analyzed. Representative plans were developed so that comparisons could be made to the costs and benefits of Federal workers. One of the representative State plans exceeds the current CSRS by about four percent of pay. The CSRS exceeds the cost of the other representative plans by between three and ten percent of pay. The higher cost of the current CSRS occurs primarily for two reasons: CSRS benefits payable at age 55 are higher than private sector benefits payable at that age, and CSRS benefits are better protected against inflation that occurs after the benefits are awarded.

The study has determined, however, that for workers retiring after a full career under private and State systems, replacement rates at retirement are similar to those of CSRS. It was also found that in recent years another benefit component, the supplemental capital accumulation plans, has often been added to the benefit structure of private sector employees. This potentially important feature of retirement income planning is not available to Federal workers. Furthermore, most private pensions are non-contributory except in the instance of these supplemental plans.

In private sector plans, ERISA prohibits forfeiture of vested rights to deferred benefits upon withdrawal of employee contributions. Thus, in contrast to the current CSRS, in which benefit credits of resigning employees are either forfeited or lose value over time, the retirement systems of employees in the private sector do not penalize as severely those employees who choose to move from one job to another. Social security credits are portable or transferrable from job to job and are indexed to retain their real value.

Employees who become totally and permanently disabled are often better off, at least initially, with typical private sector disability protection (including social security), especially if those employees have had short service, low salaries or have additional dependents. The current CSRS does provide benefits for the survivors of workers that in some instances are better than those found in most other employment, but life insurance provisions found in the private sector plans are often superior. Finally, current CSRS retirees may elect survivor benefits, but it causes a reduction in the retirement annuity. Similar provisions in private sector pension plans require a greater reduction, but social security survivor protection does not cause a reduction in the retirement benefits of primary beneficiaries.

In this chapter, issues in designing a Federal retirement system will be examined according to the findings of previous chapters. The chapter is divided into the three major retirement system components: Retirement, disability, and survivor or family benefits. Each design alternative will be compared to pension practices common to employment outside the Federal government and to how well the benefits of the current CSRS are replicated. Some design choices were developed that differ from both CSRS and the practices common to employment outside the government if these alternatives showed potential for improving existing benefit designs. Costs of particular choices are shown with the effects of each upon benefit distributions.

In each section, the basic tradeoffs in costs and benefits are analyzed. An important purpose of this chapter is to determine the effect upon all retirees if more or less plan money is spent on one feature or another, or upon one group relative to another. By holding total system costs constant, it is possible to determine the effect upon categories of beneficiaries by shifting the concentration of plan expenditures among the basic plan components or between specific provisions within those components.

Benefit levels are displayed by use of gross replacement rates for employees retiring in the year 2030, after scheduled changes to social security have phased in. Comparisions of design alternatives by use of gross replacement rates provide adequate information as to the relative effects of each variation. Net replacement rates are not shown for these employees because the future relationship between economic assumptions, social security benefit tax liability, and the overall structure of Federal and other taxes can not be presumed. Showing the sensitivity of net replacement rates to changes in that relationship would further complicate an already complex analysis. Under some designs, the tax liabilities of new Federal workers (and future retirees) covered by social security could be significantly affected by the structure of their retirement system relative to comparable tax treatment of current workers. Analysis of these differences can be accomplished as specific proposals emerge.

II. DESIGN ISSUES IN RETIREMENT BENEFITS

A. ANALYTIC APPROACH TO RETIREMENT ISSUES

The number of petential retirement system designs is virtually limitless, and all of them can be modified to meet determined cost objectives. Because the issues in benefit design can be analyzed within a range of costs, this study separates the issues of cost from the issue of pension design. The separation was accomplished by holding the total costs of the plans approximately the same as each major benefit provision was analyzed.

The important issues in benefit design are related to plan distributions along the salary scale, for different age and service combinations, between retiring employees and those who leave before becoming eligible for immediate benefits, and among the different plan components: retirement, disability, and survivors or family benefits. Within the same overall cost, money can be more heavily spent upon one provision at the expense of another; benefits can be made to favor one group relative to another. All of these distributional questions can be resolved before the cost of the system is finally fixed—cost determines the generosity of a system but does not have to determine its distribution to specific provisions or within categories of beneficiaries.

1. Constant cost and benefit equivalence

The Congressional Research Service established a common framework so that important choices could be analyzed individually as variations from the same base. Each variation compares (1) benefits of the current CSRS to (2) the benefit distributions that would occur under identical circumstances if the plan is changed to reflect practices in other employment.

Constant cost analysis relies upon the concept of "actuarial equivalence" in which the aggregate present value of benefits provided under two alternative sets of provisions are projected to be identical, even though the provisions themselves differ. Specific provisions can also be structured in several different ways that would yield to an individual retiree the same lifetime present value of benefits. Thus, normal costs of two sets of provisions can be made to cost the same, even though the impact on individuals of the two sets may differ. The analysis of retirement provisions in this chapter shows: (1) the normal cost of one provision in a system relative to another in the same system; (2) the relative cost of variations in provisions in a system in which all other provisions are held constant; (3) the distributional effects on beneficiaries of two systems that cost the same but which have different provisions; and (4) the choices that can be given to individuals, between provisions that cost the same and pay the same, but that alter the structure of payments.

2. Directing retirement expenditures

The basic tradeoffs in design are as follows:

a. Distribution of plan expenses by salary level.—The current CSRS pays the same gross replacement rate for the same number of years of service, regardless of salary level. Social security redistributes some program funds to workers with careers of lower wages. By altering the method of coordination with social security, pension funds can be made to move away from or toward higher- or lower-paid workers.

b. Distribution of plan expenses by age.—By providing unreduced benefits as early as age 55 with 30 years of service, the current CSRS encourages workers to retire early. This inducement to retire upon becoming eligible is, in recent years, partly the result of post-retirement benefit adjustments exceeding the level of wage increases. However, even if wages and retirement benefits increased at the same rate, older workers have lower present values in retirement income for the same number of years of service compared to younger workers because the same rates of replacement would be received over a shorter period of time. This same concentration of plan expenditures can be incorporated into a new system. On the other hand, by introducing reduction factors or other penalties for early retirement, plan money can be made to flow toward workers retiring later, thereby encouraging later retirement, if so desired.

c. Distribution of plan expenses by service.—The current CSRS provides relatively small benefits to workers separating long before retirement; whereas, social security benefit credits are transferable, thereby granting more rights to separating employees than are currently available. A new pension could provide even more in separation rights at the expense of retirement benefits, encouraging greater employee mobility—if that is a desired objective.

d. Constancy over time.—The current system maintains benefit values after retirement by providing cost-of-living adjustments (COLAs). If benefits are permitted to erode over time, at the same system cost, benefits can be improved in other provisions.

e. Employee discretion.—The current system specifies the amounts of benefits received by eligible workers, but gives them some control over when those benefits begin. Employees can also choose postretirement survivor benefits and can further stipulate the percentage of the salary base to be used in their computation. In a new system it would be possible to retain these choices and to add others. For instance, voluntary supplemental capital accumulation plans could be established that allow employees to choose reducing take-home pay to increase retirement benefits. Employees could be given choices as to the structure of annuity payments, whether they be indexed, or with fixed payment times, or with various combinations of lump sums and periodic payments. It is also possible to permit employees to borrow against their accrued benefit rights, or to draw them out in advance under specified circumstances. Permitting early disbursement of funds allocated for retirement is generally restricted to capital accumulation plans, but it need not be. These choices can all be designed to achieve the same projected system cost, although expenditures could be moved forward in time, and may cause uncertainty as to the ultimate level of retirement benefits.

B. BENEFIT ISSUES COMMON TO ALL DESIGNS

1. Benefit formula

The basic provision in a defined benefit plan is the retirement benefit formula. The formula is used to compute the benefit an individual receives at various points of eligibility. The formula is usually composed of: (1) a salary base, and (2) an "accrual rate," or the multiplication factor. Reduction factors for early retirement or for survivor benefits are applied after the computation of the basic benefit.

a. Salary base.—The current CSRS uses a salary base equal to the average of the highest three consecutive years salary (HI-3). From 1930 until 1969 the salary base was the highest five years salary average (HI-5), although until 1948 there were limits upon the maximum salary that could be used. In private sector plans, HI-5 is the most common salary base used in defined benefit plans (46 percent). Evidence gathered by the Wyatt Company however, suggests that larger companies frequently have pension plans with a HI-3 formula.

In the current CSRS, late career promotions and step increases have significant effects on size of annuities. Basing the benefit computation on a relatively few years favors employees with upward slopes in income to the date of retirement. Highest salary usually occurs just before retirement, and a narrower salary base produces an annuity more closely linked to final salary. Using a HI-5 instead of a HI-3 salary base would reduce the effect on the salary base of salary increases near retirement, by averaging those increases over a longer period. Employees whose salaries have been relatively constant over five years would be less affected by the difference between a HI-5 and a HI-3 salary base then employees with rapid increases near retirement.

In a system that would include social security, a salary base of HI-5 would have a smaller effect because only that portion of the benefit used for computing the Federal pension portion would be affected. In a plan costing the same as the current system, including social security and holding all other provisions constant, the normal cost would be 1.4 percentage points lower if the defined benefit plan were to use a HI-5 salary base compared to a HI-3 base. Benefits of the Federal pension part would be reduced by 6.5 percent.

b. Accrual rate.—The accrual rate used in a benefit formula is the percentage by which the salary base is multiplied for each year of service to produce a monthly benefit amount. Thus, the accrual rate determines the additional share of the salary base that is earned for each additional year of service.

In the current CSRS, the accrual rate for most general schedule employees is smaller for the early years. The current accrual rate is:

- 1.5 percent for the first five years service,
- 1.75 percent for years six through 10, and
- 2.0 percent for all years over 10,

with a maximum replacement rate of 80 percent, reached with about 42 years of service.

The accrual rate is the main determinant of overall plan generosity. For the rest of this study, the accrual rate is the factor changed to "tune" a plan cost to compare two or more plans with different provisions. To accomplish these comparisons, a basic plan model was created, complete in all provisions but with no attempt made to rationalize the features, or to make them conform to any standards that might be applied if such a plan were to be considered for adoption. The dominant characteristic of this "backdrop" plan is that it closely replicates the current CSRS provisions, but with social security taxes and benefits incorporated. Thus, with costs of the backdrop held constant to the current CSRS, and with minimum changes made to accommodate social security, the backdrop plan approximates the current system benefit distribution to the various categories of plan beneficiaries. The backdrop plan is then modified, provision by provision, to see how costs and benefit distribution are affected if features common to practices outside the Federal Government are introduced. By adjusting the accrual rate until costs between the two sample designs are again roughly constant, while continuing to hold all other provisions unchanged, costs of the specific change can be isolated and benefit levels and distributional effects analyzed.

2. *Vesting, portability, and deferred benefits*

In the current CSRS, employees are vested for retirement and disability benefits after five years of service, and for preretirement survivor benefits after 18 months. Employees leaving their Federal jobs immediately lose rights to disability and survivor protection. If they are otherwise vested but receive a refund of past contributions they forfeit all rights to deferred benefits. These rules are in marked constrast to the rights of employees covered by a private pension plan and social security.

The introduction of social security into the configuration of Federal retirement benefits will change the vesting and portability rules for affected employees. Because social security earnings credits are transferrable, a portion of the benefit credits earned in Federal employment will be retained by separating employees. This improved portability could cause an increase in employee turnover rates. With a new pension designed to accompany social security that more closely resembles the practices of the private sector, employees also could have improved vested rights to pension benefits in addition to the portable social security rights. First, while employees in the private sector usually are not required to contribute to their pension, they always have a vested right to their own contributions, plus interest. Second, once becoming vested to benefits based upon the employer's share of plan costs, they do not forfeit those rights at separation, even if they withdraw their own contributions.

To be fully vested for CSRS benefits, an employee must have paid CSRS contributions covering at least five years of service. Employees who leave Federal service with less than five years are refunded all contributions, plus three percent interest upon the accumulated sum. Employees leaving their jobs with more than five years service are given a choice of forfeiting their rights to a pension and receiving a lump sum of their contribution without interest, or remaining eligible for a benefit payable at age 62 based on the HI-3 salary base when the employee resigned. Because employees have already been taxed on the amounts deducted from their pay for CSRS benefits, these is no incentive under the current law to invest refunded contributions into a tax-deferred annuity account, such as an Individual Retirement Account (IRA). In most cases, separating Federal employees forfeit their rights to a Federal pension by withdrawing their contributions, and many probably use that refund as a temporary increase in spendable income. Many analysts believe that the practice of spending refunds is especially likely among lower-income workers, whose need for long-term investment for retirement is arguably greater, but on whom the pressures for immediate consumption are probably greater still.

3. *Comparing the value of choices at separation*

Employees who consider leaving their Federal jobs after completing a substantial number of years of service, especially if there are still many years remaining until age 62, face a tough choice: Withdraw all contributions and forfeit retirement benefit rights, or retain rights to a benefit that declines in real value until benefits are payable. The provisions causing this difficult choice are often criticized as a major deficiency of CSRS.

The following table compares the value of the choices for an employee considering leaving a Federal job. This employee entered employment at the average entry salary of around $16,000 annually, and is projected to retire at the average preretirement salary for a 30-year worker of about $29,000. The employee's promotional pattern is thus unexceptional. Because a different pattern would yield different values, care should be exercised in interpreting the results.

TABLE 4-1.—COMPARISON OF VESTING, PORTABILITY, REFUNDS AND DEFERRED BENEFITS FOR A TYPICAL WORKER ENTERING SERVICE AT AGE 32 UNDER CSRS AND A CONSTANT COST PENSION INCLUDING SOCIAL SECURITY [1]

	Current CSRS					Costant cost plan—replacement rate at age 65, total retained social security and deferred benefit (percent)
		Replacement rate at age 62				
		Invested contributions				
	Withdrawn contributions	At 3 Percent	At 6 percent	At 9 percent	Or deferred benefit (percent)	
Leaving after 10 years	$13,300	2	5	10	7	10
Leaving after 20 years	27,200	3	5	9	22	26
Remaining until retirement (30 years)	NA	NA	NA	NA	53	[2] 47

[1] This constant cost plan is one in which social security benefits and taxes have been incorporated with minimum changes to current CSRS provisions. The accrual rate is adjusted to achieve constant costs.

[2] Total replacement after 30 years is lower in the constant cost plan in the example because of differences in the pattern of payments in CSRS and social security. These differences are analyzed on pages 119 to 121.

The constant cost plan illustrated here continued the employee's right to a deferred benefit under the same circumstances as the current system, but it also provides a social security benefit (prorated for the appropriate amount of service). As the table shows, under this arrangement the employee leaving Federal employment after 20 years would have a vested replacement rate of four percentage points greater than the deferred benefits payable under the current CSRS.

C. REPLICATION OF THE CURRENT CIVIL SERVICE RETIREMENT SYSTEM

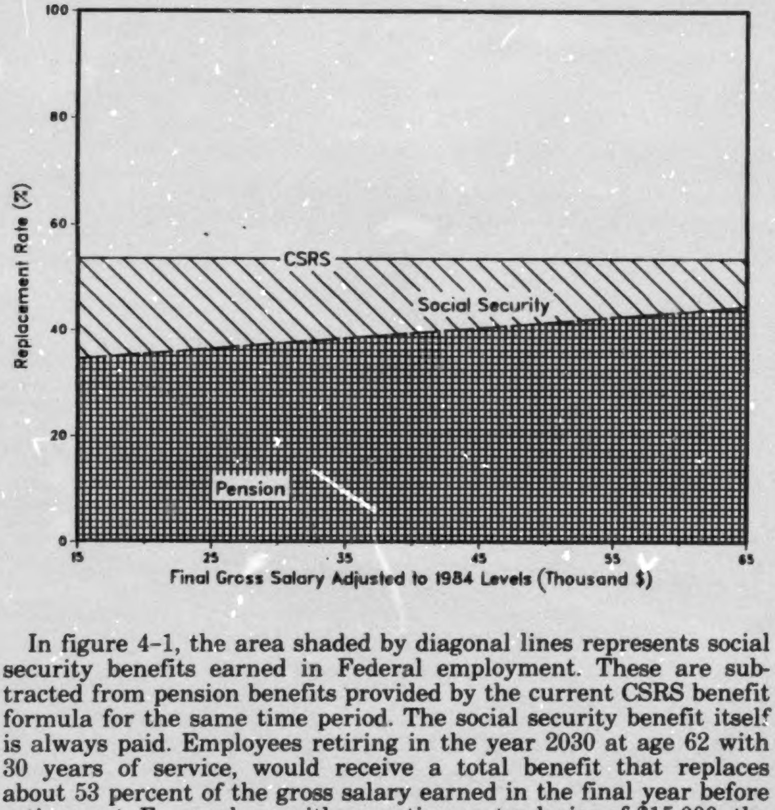
1. Retain current system but subtract social security

At first glance, the problem of modifying CSRS to accommodate the benefit and tax structure of social security does not appear difficult. It has been suggested from time to time that social security provisions simply could be applied to the affected workers while leaving CSRS in its present form. To prevent any extraordinary benefit duplications the concept envisions a substraction of the social security benefits earned in Federal employment from any CSRS benefits earned at the same time. The employees would be required to pay the current CSRS rate of seven percent, with social security taxes included within that amount. (The 1.3 percent for Medicare would come on top of the taxes for retirement.)

Called a 100 percent offset plan, the procedure requires subtracting or "offsetting" the social security benefits earned and taxes applied during Federal employment from those of CSRS. Advantages of the plan are its relative simplicity and lack of apparent difference in comparison to the compensation earned by employees covered under the current system. Benefits would be the same as paid under the current system at all income levels. Moreover, the outline of the approach is contained in legislation already enacted.

Figure 4-1 shows the general distribution of benefits under a 100 percent offset plan that subtracts social security retirement benefits earned through covered Federal employment from benefits payable through CSRS.

FIGURE 4-1. One Hundred Percent Offset Plan: Gross Replacement Rates for a Single Worker Age 62 With 30 Years of Service



In figure 4-1, the area shaded by diagonal lines represents social security benefits earned in Federal employment. These are subtracted from pension benefits provided by the current CSRS benefit formula for the same time period. The social security benefit itself is always paid. Employees retiring in the year 2030 at age 62 with 30 years of service, would receive a total benefit that replaces about 53 percent of the gross salary earned in the final year before retirement. For workers with preretirement salaries of $15,000, the pension would provide about 63 percent of the total benefit and social security about 37 percent. At $45,000, the social security benefit drops to about 23 percent of the total with the pension climbing to about 77 percent of the combined benefit. Wages have been adjusted to 1984 salary levels so that comparisons can be made to workers retiring today at the same relative position in the Federal wage scale.

The combination of retirement at age 62 with 30 years of service was selected because at that age social security benefits are obtainable, and because the average age of retirement in both Federal and other employment is in the 60 to 62 range. Thirty years is commonly thought to be a full career with one employer: Not only is that service period the general optional retirement provision in CSRS, but it appears quite often as the age for unreduced benefits in private and State pension plans. About one in five workers in the private sector is eligible to receive full benefits at age 55 with 30 years of service.

Under the current CSRS, age affects workers' retirement benefits only to the extent that it determines eligibility, with the exception of retirement benefits payable to workers involuntarily separated before age 55 If the example in figure 4-1 were constructed from data for workers retiring at age 55, no offset would be shown. Because the earliest age of social security eligibility is age 62, benefits payable at age 55 through age 62 would be the same as the current CSRS; social security benefits would be offset as they became payable.

By the year 2030, the point at which these workers are shown to retire, the age of full benefits payable from social security will, under current law, rise to 67. Social security benefits payable at age 62 will be reduced to 70 percent of full benefits, a decline from 80 percent, the current percentage payable at age 62. This reduction would have no effect on total benefits received under this 100 percent offset plan, because only those retirement benefits actually payble from social security would be subtracted from the CSRS benefit.

Figure 4-1 shows that workers who retire with wages nearer the lower end of the Federal wage scale would receive relatively higher portions of their total benefit from social security than would workers higher up the income scale. This occurs because of the redistributive tilt of social security which replaces higher proportions of wages for lower income workers who are presumed to have a need for a higher proportion of income replaced when they retire.

As the figure indicates, the effect of this tilt is eliminated entirely in the 100 percent offset plan. While the combined replacement rate for retirees (excluding for the moment any additional social security benefits payable for dependents) remains the same across the salary scale, the different proportion of benefits payable from the two programs has an interesting and potentially important implication. Social security benefit rights are portable from one job covered by the program to another. The wages from each job are also indexed for change in the economy during an employee's career. At the time an employee retirees, all covered wages are adjusted so that they appear in the benefit computation as if they had been earned during the year in which the retiree reached age 60. This indexing of wage credits differs greatly from CSRS, a program that grants credits to workers for Federal service only, and bases that service on the unindexed HI-3 pay at separation.

In CSRS, vested separating employees are given the choice of withdrawing contributions and forfeiting future benefit rights, or leaving contributions in CSRS and retaining rights to deferred benefits. The deferred benefits are computed on wages at the time of separation. In inflationary times, if substantial time elapses between separation and age of eligibility, CSRS wage credits can diminish significantly in value. Thus, CSRS participants weighing the advantage and disadvantages of leaving Federal employment must consider the losses in retirement rights as an important element in their decison. The introduction of social security benefits into the civil service retirement structure reduces the loss resulting from separation for nearly everyone, but the relative advantage of this increased portability is greater at lower salaries. This increased portability will occur in all plans incorporating social security, but its impact is most noticeable in a 100 percent offset plan. While it can be expected that increased portability will have some effect upon employee turnover, inadequate data prevent meaningful forecasts of how rates of separations would vary at different salary grades.

a. Interim CSRS plan (1984-1985).—Title II of the Federal Physicians Comparability Allowance Amendments of 1983 (P.L. 98-168), known as the Federal Employees' Retirement Contributions Temporary Adjustment Act of 1983, established a temporary 100 percent offset plan. In general, the Act requires that Federal employees covered by social security because of the Social Security Admendments of 1983 pay only 1.3 percent of their total salaries for CSRS. These employees will also pay full social security employee taxes (6.7 percent of the taxable wage base in 1984, 7.05 percent in 1985). Federal employees not covered by social security pay seven percent of their salaries to CSRS, plus 1.3 percent of the social security wage base for Medicare coverage.

The Act covers the period from January 1, 1984 to January 1, 1986, or to the date of enactment of a new pension plan for affected workers, whichever occurs first. Affected employees who wish to retire, or who die or become disabled during the interim period, will, under most circumstances, have subtracted from their CSRS benefit only those social security benefits earned during the interim period. Thus, the Act comes close to the design of a 100 percent offset plan. Most new Federal workers are required to pay almost the same amount for retirement benefits as they would have paid to CSRS if they were covered under that program alone, and they receive the same benefit values for their service.

There are several differences, however, between the provisions of the Act and a "pure" 100 percent offset plan.

(1) *The tax rate is different from that of a pure 100 percent offset plan.*—Public Law 98-168 (the Temporary Adjustment Act) established level contributions for most Federal employees covered by social security; the sum of most newly-hired general schedule (GS) employee contributions to social security (including Medicare) and CSRS in 1985 (8.35 percent) will equal the combined rate most current employees will pay to CSRS and Medicare (8.30 percent). Workers at the upper levels of Federal salaries will pay less under the Temporary Adjustment Act than is required of workers at the same salaries who are covered only by CSRS.

Federal workers hired before 1984 (or who are returning to Federal service with less than one year's separation) pay seven percent on their entire salaries to CSRS, plus 1.3 percent of pay up to the maximum taxable amount ($39,600 in 1985) to Medicare. Salaries above the social security wage base are not taxed for Medicare. Federal employees covered by social security, and with salaries above the wage base, pay the OASDHI rate of 7.05 percent in 1985 only up to the base, but 1.3 percent to CSRS on the entire wage. Thus, higher-paid Federal workers covered by social security pay the combined rate of 8.35 percent in 1985 only up to the maximum, and the salary above that amount is taxed at 1.3 percent. In 1985, this will be a difference of 5.7 percentage points on all pay above the taxable wage base.

Certain Federal workers with enhanced benefits pay into CSRS at higher rates than the standard GS rate of seven percent. Federal law enforcement officers, firefighters, air traffic controllers and congressional staff hired before 1984 pay 7½ percent, and Members of Congress eight percent of their salaries to CSRS. Under the Temporary Adjustment Act, members of these groups who become covered by social security pay the same rate as all other GS employees.

(2) *Refunds of contributions are different.*—Employees who separate before becoming eligible for benefits are able to receive refunds of their own contributions under the current system. If they subsequently are reemployed by the Federal Government they are permitted to repay previously withdrawn contributions and reclaim their CSRS benefit credits. Separating employees covered by the Temporary Adjustment Act are not permitted to withdraw taxes paid to social security; no participants in social security are allowed refunds of taxes paid. These employees are, however, able to withdraw their 1.3 percent contributions to CSRS. The interim provisions of P.L. 98-168 prescribe certain repayment requirements for any employee who has withdrawn contributions and who becomes eligible for benefits based in part upon social security covered service.

(3) *Not all social security benefits are offset.*—Employees eligible for benefits under social security may also be eligible for certain dependents' benefits not provided by CSRS. For instance, the spouse of an eligible social security beneficiary may qualify for additional benefits. Spouses can receive a benefit guarantee equal to 50 percent of the primary earner's social security benefit. Spouses receive the larger of a benefit based on their own earnings, or an amount that, together with benefits based on their own earnings, is equal to 50 percent of the primary earner benefit. Other dependents of social security beneficiaries may be eligible for benefits not provided under the current CSRS. Under the Temporary Adjustment Act, these additional benefits are not subtracted from civil service pension amounts.

b. Summary of advantages of a 100 percent offset plan.—A 100 percent offset plan would present no insolvable administrative problems. In addition the new arrangement would be fairly easy to understand. It would provide benefits comparable to those payable under the current system, and thus current and new workers would receive essentially the same retirement benefit values. However this plan would entail some additional cost (about three percent of total Federal pay), but most of that additional cost would provide benefits not now provided under CSRS. In several cases, these additional features would improve those aspects of the current system many analysts have considered as serious deficiencies. Although the technical details of permanent implementation raises some questions, adopting a 100 percent offset plan would require little more than extending indefinitely the concepts underlying P.L. 98-168.

c. Distributional issues raised by a 100 percent offset plan.—The current CSRS provides identical replacement rates to retirees across all income levels with the same number of years of service at entitlement. Because of the redistributional tilt of social security, under a 100 percent offset arrangement, lower paid workers would receive a higher share of their total benefit from the social security component than would higher paid workers, and thus, they would receive a smaller share of their total benefit from the pension component. Figure 4-1 on page 112 shows this distributional relationship between the 100 percent offset plan and social security clearly.

Under a 100 percent offset plan, the pension portion of the plan yields smaller replacement rates for the same number of years of service for lower incomes relative to those for higher incomes. Thus, any contributions to the Federal pension would yield higher relative returns in benefits the higher up the income stream the worker is at retirement.

The extent to which pension dollars would flow to high-paid workers would not be permitted for private sector plans seeking favorable tax treatment under IRS guidelines governing plan distribution. IRS guidelines permit some pension distribution to higher wage workers in order to lessen the effect of the social security "tilt," but private plans are not permitted to eliminate the tilt completely by subtracting 100 percent of the social security benefit in computing the plan benefit. Although the Federal Government is not bound by the rules it applies to private sector plans, if its own employee pension does not conform to standards that the government applies to private pensions, the standards themselves might be called into question. Completely offsetting the social security distributional tilt concentrates employer pension expenditures on higher-paid workers, and private sector employers wishing to direct more of their compensation to such workers could press for permission to adopt similar arrangements.

Pension benefits defer compensation and defer taxation as well. Higher paid workers benefit more from deferring taxes because they drop farther in tax brackets when they shift from work to retirement compared to lower-paid workers. Therefore, IRS guidelines have the effect of restricting the extent to which employers are able to use the favorable tax treatment accorded pensions to improve the compensation of high paid workers. The IRS rules encourage employers to establish pensions ensuring retirement incomes to all employees, and are not merely a means of sheltering income for high paid employees.

While the Federal Government cannot seek tax advantages, its employees are presumably liable for taxation under the same rules as apply to other workers. By meeting the IRS standards for tax qualification, a pension not only provides favorable tax treatment for pension fund contributions, investments and earnings, but allows employees to defer taxes on the pension benefits until they are received. Compensation provided through non-qualified pensions is taxable at the time it is earned.

The benefit tilt to higher-paid workers in a 100 percent offset plan is the reverse image of the social security tilt to lower incomes, so it cannot be assumed that workers are treated worse under the arrangement if *total* gross benefits remain the same. Indeed, some workers, even low-income ones, would do considerably better under any pension coordinated with social security, including one with a 100 percent offset. For instance, Federal workers' spouses not eligible for social security benefits on their own earnings would receive a social security check (50 percent of the primary social security benefit) if they met appropriate age requirements.

It is also possible that having a greater share of the total benefit paid from social security would convey certain tax advantages to recipients. How retirement income will be taxed in 2030 cannot be known in advance, but it is possible that social security and pension benefits will be taxed differently in the future. In that case, the relative proportions of the benefits at different income levels would have effects upon tax liabilities. At present, social security benefits are less subject to taxes than are pension benefits, but under current law the disparity of treatment will lessen over time.

Finally, the distributional tilt of social security has a pronounced effect upon the retirement income of most of the workforce. The effect of a 100 percent offset plan would be to use Federal revenues to counteract a policy imposed on all private sector plans.

2. A comparable cost 100-percent offset plan

The 100-percent offset plan outlined above retains the current formula in CSRS and subtracts the retirement benefits of social security earned in Federal employment. As was stated, the cost of plans that duplicate current retirement benefit levels would be between 2–3 percent of payroll higher than that of the current CSRS. Lowering the accrual rate of the current system to diminish overall benefit generosity could reduce the cost of the overall plant to equal that of the current system.

Figure 4–2 displays a 100-percent offset plan calibrated to achieve costs comparable to the current system.

FIGURE 4-2.—One Hundred Percent Offset Plan at Constant Cost: Gross Replacement Rates for a Single Worker Age 62 With 30 Years of Service

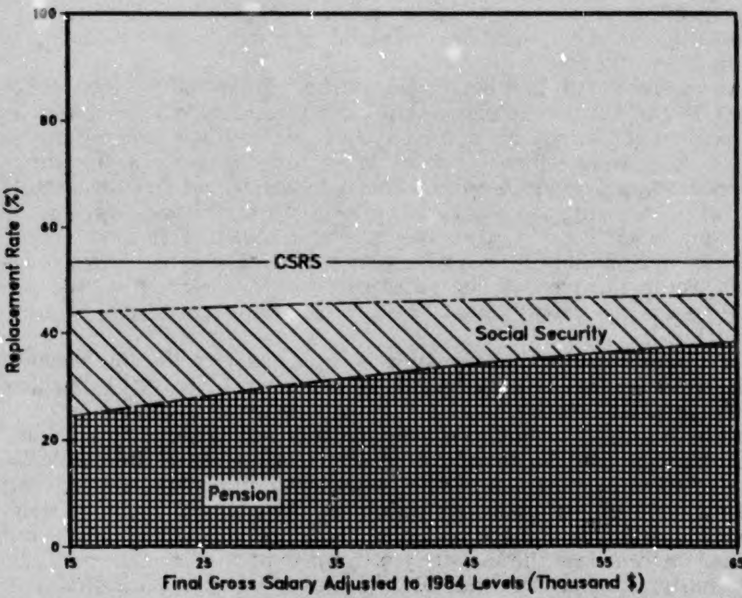


Figure 4-2 shows a plan in which all other provisions are the same as the plan displayed in figure 4-1. The worker is shown to be retiring at age 62 with 30 years of service, and final salaries from $15,000 to $65,000 are displayed. The social security benefit has been prorated to reflect only that portion earned during Federal service.

The current CSRS provides gross replacement rates of about 53 percent for workers with 30 years of service. This constant cost 100 percent offset plan provides a total replacement rate on average of eight percentage points lower than the current system. For the worker with an average preretirement salary ($29,000), social security provides about 34 percentage of the total benefit. Workers with $15,000 in preretirement wages receive 44 percent of their benefit from social security compared to 26 percent for workers at $45,000, and only 19 percent at $65,000.

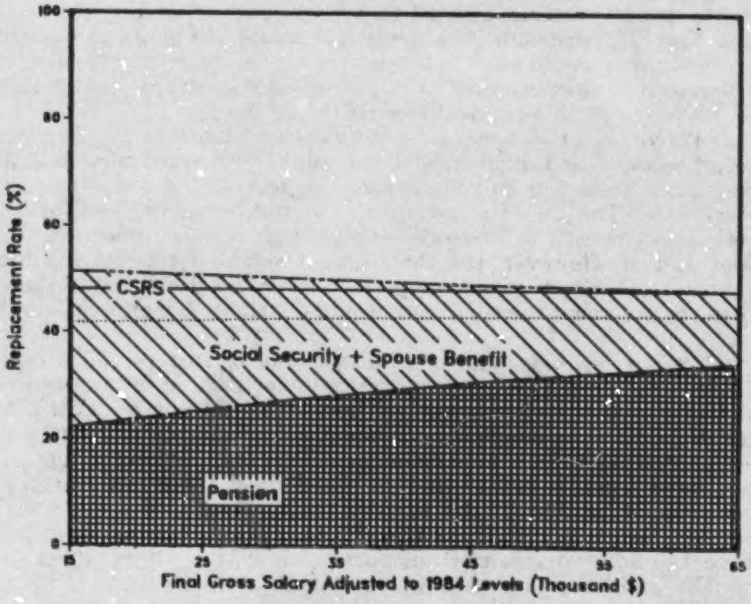
Note that the plan actually replaces higher total gross salaries for higher-paid workers compared to that replaced for the lower-paid, even though the social security benefit is completely offset. This upward tilt is caused by the interaction of the offset and the retirement age. As is common practice in the private sector, the offset is applied to full social security benefits payable at age 67, but these workers, retiring at age 62, receive social security benefits reduced 30 percent for early retirement. Because higher-paid workers receive a relative smaller share of their total benefits from social security, they are less affected by the reduction than are lower-paid workers. Were these workers shown to be retiring at age 67, a level replacement rate across incomes would have resulted. It would also be possible, at least theoretically, to offset benefits actually payable. Although such a method would eliminate this slight upward tilt it would require a complex administrative procedure in order to maintain constant cost, including a continual monitoring of the payment of dependent's benefits and the like.

a. Where does the money go?—Why does a plan that incorporates social security and duplicates the current CSRS retirement benefit cost more than the current system to provide the same replacement rate? The Federal Government would be paying less for the retirement benefit of Federal workers than is paid under the current system. However, the Government would *not* be paying less for the total system of income protection provided Federal workers. Instead, the new Federal system would distribute benefits differently.

(1) *Social security pays some benefits not offered by the current CSRS.*—Social security pays benefits under certain circumstances to individuals who do not receive them under the current CSRS. As mentioned before, supplemental benefits are payable to spouses (of social security beneficiaries) who, upon reaching retirement age, do not have social security benefits based upon their own earnings equal to 50 percent of the social security benefit of the primary worker. Social security pays benefits to children and to dependent parents under various circumstances. The cost of these additional benefits is less than .5 percent of payroll, net after certain offsets and adjustments.

Figure 4-3 shows, under a comparable cost 100 percent offset plan, the benefits payable to a couple in which one spouse does not have sufficient earnings covered by social security to qualify for retirement benefits greater than 50 percent of the other spouse's benefit. The dotted line shows the relationship between the primary and spouse social security benefit.

FIGURE 4-3.—One Hundred Percent Offset Plan at Constant Cost: Gross Replacement Rates for a Married Worker Age 62 With 30 Years of Service



As figure 4-3 shows, benefits received under such circumstances are about equal to those payable under the current system for the worker with average preretirement wages of $29,000. Total gross replacement rates would range from 51 percent for $15,000 workers to 49 percent for workers with $45,000 in preretirement salaries. The spouse benefit would add about eight percent in replacement rate to the benefits of the average married beneficiary with this age and service combination. The figure also shows a slight tilt in replacement rates toward couples lower in the salary scale, a reversal of the upward tilt for single workers shown in figure 4-2. The social security distributional tilt to lower wage retirees is magnifiled by the addition of spouse benefits, and is sufficient to overcome the effect of the interaction between social security age reductions and pension-to-social security ratios noted in the discussion of figure 4-2.

(2) *Benefits are portable under social security.*—The current CSRS does not provide benefits to employees who leave after working more than one but fewer than five years. Instead, the sum of all contributions, plus three percent interest, is refunded to them. Employees with more than five years have a choice of either withdrawing contributions with no interest and forfeiting future benefit rights, or retaining rights to a deferred benefit that will be eroded by inflation between the date of separation and age 62, the age at which deferred benefits are paid. Social security benefits are not

forfeitable (except for certain categories of prisoners), and Federal employees covered by that program would retain rights to benefit credits earned under that program through Federal employment when they resigned. The value of these added portability rights is about 1.8 percent of pay, or about two-thirds of the difference in distribution caused by the introduction of social security.

(3) *Social security contributions of Federal workers would help pay benefits of non-Federal workers.*—The average Federal wage that would be taxed and credited for social security purposes is higher than the average wages taxed and credited in private sector jobs. Because social security is redistributive, a part of the social security payroll tax paid by, and in behalf of, Federal workers would not be returned to Federal workers in benefit payments. Instead, some of the revenues to social security collected from the Federal payroll would tend to subsidize the benefit payments of those workers in non-Federal employment whose wages fall below the average in taxable wages covered by the Social Security program. The normal cost of this distributional effect is less than .5 percent of total Federal payroll. About one-sixth of the benefit shift is actually lost to Federal workers; the remainder is paid to Federal workers in a different pattern of payments.

(4) *Social security benefits are greater for workers retiring at later ages.*—Social security benefits are reduced for retirement at age 62. Consequently, in a new system that includes social security, total benefits received by workers who retire at later ages may be higher than benefits received by workers with the same salary and service who retire early. In marked contrast, the current CSRS does not increase retirement benefits for older ages but only for longer service after minimum ages have been reached. Because of the relatively few workers actually retiring at these later ages, the cost of this higher value for older retirement is insignificant.

D. INTRODUCING PRACTICES FROM OTHER PLANS

1. The analytic framework

The previous section demonstrated that it is not possible to entirely replicate retirement benefits of the current CSRS at constant cost because the social security pattern of payments differs from the current system. Social security pays beneficiaries that CSRS does not pay and vice versa, and the two programs have different approaches to benefit determinations for common benefit categories.

The effect of variations in design on benefit distributions is best demonstrated by holding plan costs constant and retaining all other provisions in their present form. In order for the analysis to proceed it is necessary to construct an artifice—a plan concept that contains a consistent array of provisions serving as a background against which the individual provision being analyzed can be seen. This "backdrop" plan is complete in all provisions but is not designed as an option. Certain liberties were taken in the backdrop plan so that the purpose of a common framework could be achieved. For instance, aspects of the plan change as the analysis of techniques for coordinating with social security are explored.

The backdrop concept has three main characteristics:

(a) A common and complete background of provisions replicating the current CSRS into which individual variations in provisions could be introduced.

(b) A consistent distribution of plan expenditures by benefit categories.

(c) A relatively uniform distribution among the components of retirement, disability and survivor benefits, of the value of differences in the pattern of payments between social security and CSRS (see pages 119–121).

Table 4–2 compares plan expenditures by benefit component of the current CSRS to those of the backdrop plans.

TABLE 4–2.—PERCENT OF PLAN EXPENDITURES BY BENEFIT COMPONENT: CURRENT CSRS AND BACKDROP MODELS

[In percent]

	CSRS	Backdrop (including social security)	Backdrop difference from CSRS
Voluntary retirement	58.8	53.4	−5.4
Nonvoluntary retirement	8.4	8.1	−0.3
Dependent benefits	0.0	1.6	+1.6
Survivor benefits	11.9	10.9	−1.0
Disability retirement	14.7	13.9	−0.8
Vested benefits/refunds	4.7	10.5	+5.8
Other costs	1.5	1.5	
Total pension plan	100.0	100.0	

The table shows that the backdrop concept pays less in retirement, disability and survivor benefits, but more in vested benefits. Because of social security, the backdrop shows payments to dependents that are not paid under the current CSRS.

Table 4–3 shows the basic provisions of the backdrop concept. As changes are introduced, all provisions other than the ones analyzed remain the same.

Table 4–3.—Basic Provisions of Backdrop Plans

Accrual rate	Varies as needed to achieve constant cost (100 percent offset, 1.8 percent; 50 percent offset, 1.45 percent; add-on, 1.13 percent; all × years of service, × the salary base of HI–3).
Coordination with social security	Add-on, 50 percent offset, 100 percent offset at age 62, supplement equivalent to social security paid until age 62.
Retirement age	55/30, 62/20, 62/5 (same as current CSRS).
COLA	Full.
Disability	Generally, 40 percent of HI–3 salary minus social security.
Preretirement death	55 percent of accrued retirement benefit (18 months vesting).
Postretirement death	55 percent of retirement benefit (if selected).
Children survivors	None (assumed payable from social security).
Deferred benefits/refunds	Deferred benefit or refund of contributions with interest.
Vesting	5 years.
Employee contribution	7 percent less social security taxes (OASDI only).

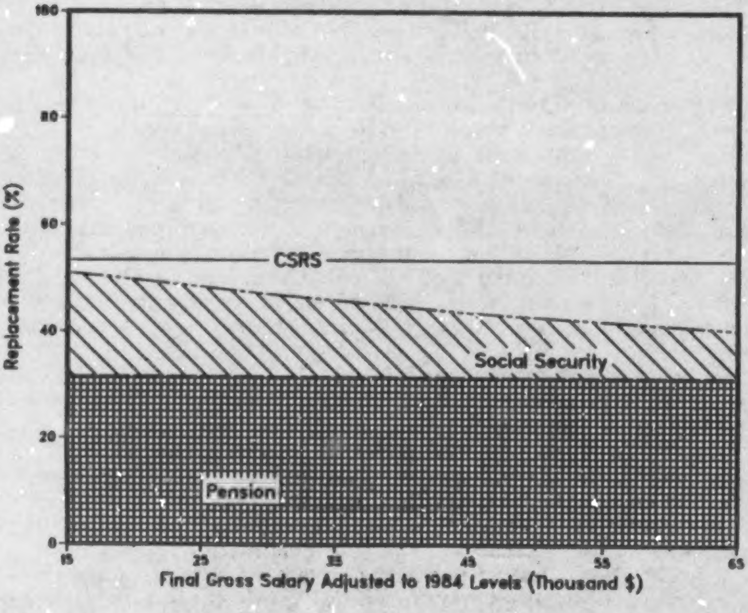
2. *Coordination with social security: the issue of retirement income redistribution*

The current CSRS replaces the same percentage of preretirement dollars for workers at all income levels who retire with the same number of years of service. Social security replaces a higher proportion of earnings for persons with lower career average wages. This tilt must be taken into consideration when designing a Federal pension for workers who will be covered by social security.

The "100 percent offset" plans completely eliminate the effect of the tilt by subtracting the social security benefit from the pension paid. At the other pole are "add-on" plans, which fully retain the social security redistributional advantages to lower-paid workers. In between are plans that counteract but do not eliminate the social security tilt ("integrated" plans). The following illustrations cover the effects upon income distribution of various strategies for coordinating the pension with social security redistributional policy.

a. Add-on plans.—The opposite pole from a 100 percent offset plan is the type of coordination known as an "add-on" plan. An add-on plan, as the name implies, simply provides pension benefits in addition to those of social security. Whereas the 100 percent offset plan completely eliminates social security redistributional effects, the add-on maintains them entirely. Figure 4-4 illustrates the distributional effects on an add-on formula upon retirement benefits of workers retiring in the year 2030 with 30 years of service at age 62. Social security benefits have been prorated for service of 30 years; the social security formula regards 40 years of covered employment as a complete work career, and includes wages from all jobs in that earnings record. A more typical full career with one employer is 30 years, and that corresponds to the average service at retirement in the current civil service.

FIGURE 4-4.—Add-on Plan at Constant Cost: Gross Replacement Rates for a Singl Worker Age 62 With 30 Years of Service*



*NOTE.—For purposes of this analysis, the cost of a new retirement system combining social security with a pension was set at the cost of the current CSRS. Even so, this and all subsequent figures show lower replacement rates for the combined plans relative to the current CSRS. These lower replacement rates are a reflection of the change in distributional patterns caused by social security, with losses in retirement benefits offset by more generous benefits in other features.

As this add-on illustration shows, pension benefits are the same for workers at all income levels. Workers would receive about 32 percent of their gross preretirement salaries from the pension. However, social security benefits would replace about 19.5 percent of the salaries of low-paid workers compared to 12 percent for workers retiring at $45,000. Total benefits would replace about 47 percent of the average preretirement salary (about $29,000).

Substantially lower benefits for high-paid workers, coupled with the portability of benefits provided by social security, could induce higher-grade Federal employees to leave Federal employment at a faster rate than they do at present and could lead to increased turnover rates at all grades. If it is true, as many studies have shown, that higher-grade Federal employees are less well paid than their counterparts outside the Federal Government, then a pure add-on plan would intensify the disparity. Section F, in this chapter, illustrates how the effects of the add-on can be modified by introducing supplemental capital accumulation plans into the pension design.

Figure 4-5 illustrates the add-on plan at different retirement ages with 30 years of service. Supplements equal to the value of expected social security benefits payable at age 62 are shown for workers retiring at age 55. The pension remains constant at all ages and salaries. The supplement would be a benefit earned by workers qualifying for benefits before the age of social security eligibility and would constitute a strong inducement to retire. The distributional effects of the social security tilt remain identifiable at all age and service combinations. Note that total replacement rates for workers retiring at later ages increase at faster rate for lower-paid workers compared to higher-paid workers.

Figure 4-5.—Add-on Plan at Constant Cost: Gross Replacement Rates for a Single Employee With 30 Years of Service

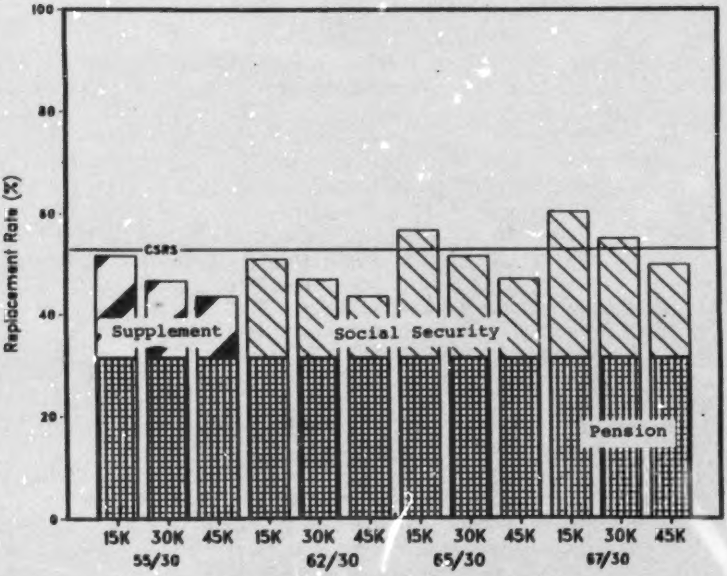


Figure 4-5 shows the effect upon benefits under social security of retirement before age 67, the age of full benefits by the year 2030. By 2030, the provision in the 1983 Social Security Amendments raising the age of full benefits from age 65 to age 67 will be fully effective, and the reduction for retirement at age 62 will climb from 20 percent to 30 percent.

While relatively few add-on plans are found covering salaried employees in the private sector, they are common in State and local pension systems. History helps explain this. Many State and local plans began before social security was passed. Furthermore, public employees were excluded from the program at its origin in 1935, and were prohibited from participating until 1950. After 1950, State and local governments began to participate in social security voluntarily and, in many cases, simply added the social security benefits to existing defined benefit structures. On the other hand, many private pensions came into existence after social security began, after Federal Government actions encouraged their generation. The implications for benefit replacement rates of the social security tilt were understood at the time these private pensions were designed, and steps were taken to counter the tilt.

Collectively bargained plans covering hourly-wage employees are usually add-on plans. Plans for these employees are "dollar benefit" plans, i.e., workers are given specific dollar amounts for each year of service. Salaries in employment covered by such plans usually do not vary greatly among the workers, and the social security tilt is not a significant issue in such plans.

b. Integrated plans.—Employers design pensions with the knowledge that social security will provide some portion of the retirement benefit for all workers. Employers who want to improve benefits for higher-paid workers without exceeding retirement income objectives for lower-paid workers must diminish the degree of tilt within the overall benefit structure.

Pension plans that explicitly counter the effects of the social security tilt are said to be "integrated" with social security. Integration techniques cause the pension formula to provide higher-paid workers pension benefits that are larger relative to preretirement earnings than those for lower-paid workers. As a result, the lower replacement rate from social security that higher-paid workers receive is partially countered. In turn, integrated plans must comply with IRS guidelines designed to ensure that, after removing the value of social security benefits attributable to employee contributions, combined social security and pension benefits do not replace higher portions of preretirement salaries of high-paid workers than of the lowest paid.

(1) *Partial offset plans.*—In partial offset plans, some portion of the social security benefit is taken to represent a portion of the pension that the employing sponsor does not have to provide in order to meet retirement income objectives. That amount of the pension provided by social security is said to be "offset" from the pension. Offsets are merely a device to achieve certain distributional ends, and are not, in themselves, devices that necessarily affect plan costs.

As discussed earlier, private plan sponsors are not permitted to offset fully all social security benefits. Generally, the maximum allowable offset is 83⅓ percent of the social security benefit. Other IRS restrictions about various plan components can push the offset maximum even lower.

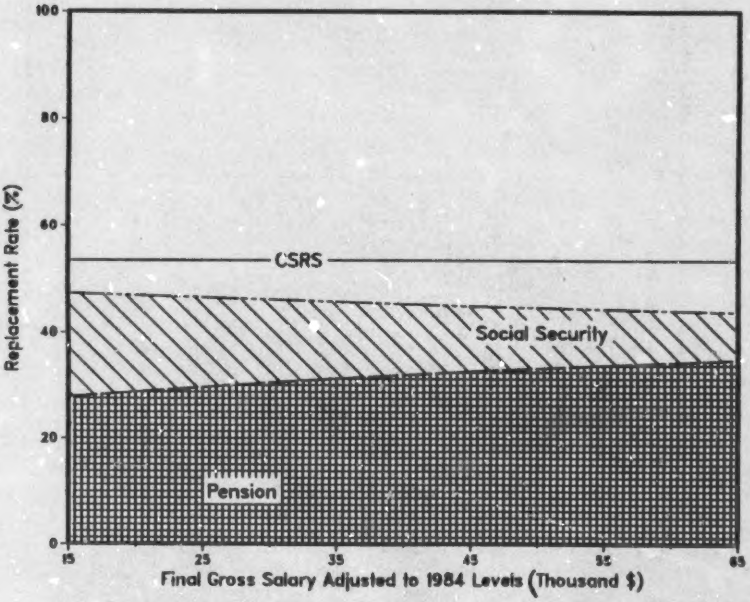
The following example of an offset may help in understanding the operation of the provision. Assume:

(1) A pension benefit calculated at retirement equals	$1,000
(2) A social security benefit calculated at retirement equals	$600
(3) An offset percentage (percent)	50

In the example, the offset percentage (50 percent) is applied to the social security benefit ($600). The product ($300) is subtracted from the pension ($1,000 minus $300) yielding a pension benefit after the offset of $700. The remaining pension benefit can then be added to the social security benefit ($700 plus $600) for a total benefit of $1,300.

Figure 4-6 shows the distribution of benefits in a 50 percent offset plan. Workers are shown retiring at age 62 and 30 years service. The social security benefit is prorated for Federal careers, and the offset is applied to full benefits, which are then reduced for early retirement. As in the add-on illustrations in figures 4-4 and 4-5, costs and all other provisions have been held constant.

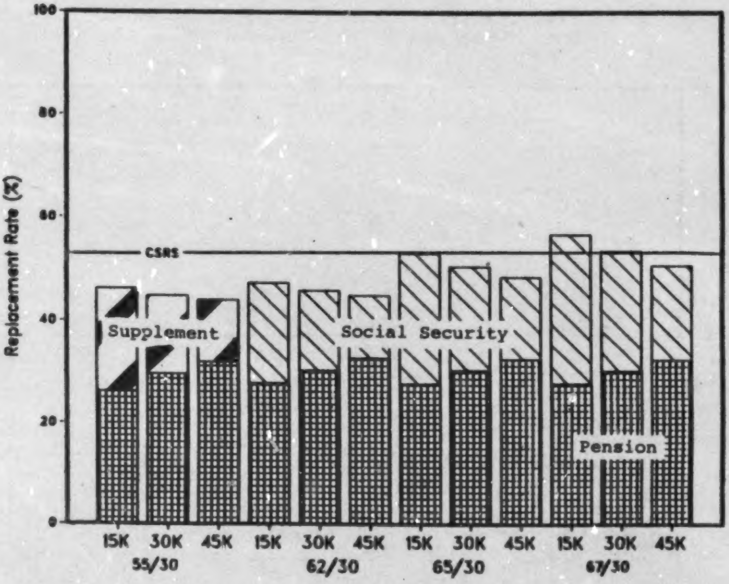
FIGURE 4-6.—Fifty Percent Offset at Constant Cost: Gross Replacement Rates for a Single Worker Age 62 With 30 Years of Service



The figure shows that although the effect of the social security tilt is not as pronounced as in an add-on plan, lower wage workers ($15,000) would still receive slightly higher gross replacement rates (47 percent) than the average (46 percent), and higher wage workers ($45,000) would receive slightly less (45 percent).

Figure 4-7 shows the effect of a 50 percent offset provision at other age and service combinations. By comparing figure 4-7 to figure 4-5, in which the same age, service, and salary contributions are shown for persons retiring under an add-on plan of comparable cost, the effect upon pension distributions of the two types of coordination is easily seen. The bottom segment of each bar is the pension benefit, the upper segment social security. Because the employee demographic characteristics are identical, the social security benefit for each salary bar in figure 4-7 is the same as the corresponding salary bar in figure 4-5. The pension segment, however, is the same cross salary classes in figure 4-5, but is tilted to upper salaries in figure 4-7. The purpose in an offset plan is to provide more uniform retirement income distribution by directing more pension dollars to higher-wage workers to partially offset social security's more favorable treatment of low-wage workers.

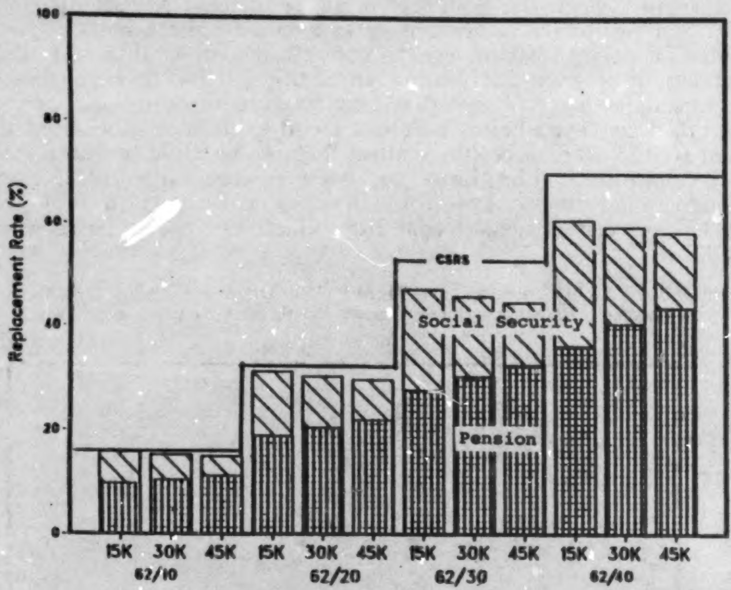
FIGURE 4-7.—Fifty Percent Offset at Constant Cost: Gross Replacement Rates for a Single Worker With 30 years of Service



Figures 4-5 and 4-7 show replacement rates for workers retiring under plans that include social security increases for workers retiring at later ages. This increase for later retirement ages is more beneficial at lower wages compared to high. The interaction of the offset and the social security reduction is more noticeable because of the higher proportion of the total benefit provided by social security at the lower end of the wage scale. At $15,000 gross preretirement salary, total replacement climbs almost 10 percentage points between age 62 and 67, compared to a six percentage point increase in rates for the worker with a pretirement salary of $45,000. Replacement rates from CSRS are the same at all ages and all salaries.

Figure 4-8 compares replacement rates earned for different periods of service.

FIGURE 4-8.—Fifty Percent Offset at Constant Cost: Gross Replacement Rates for a Single Worker Age 62

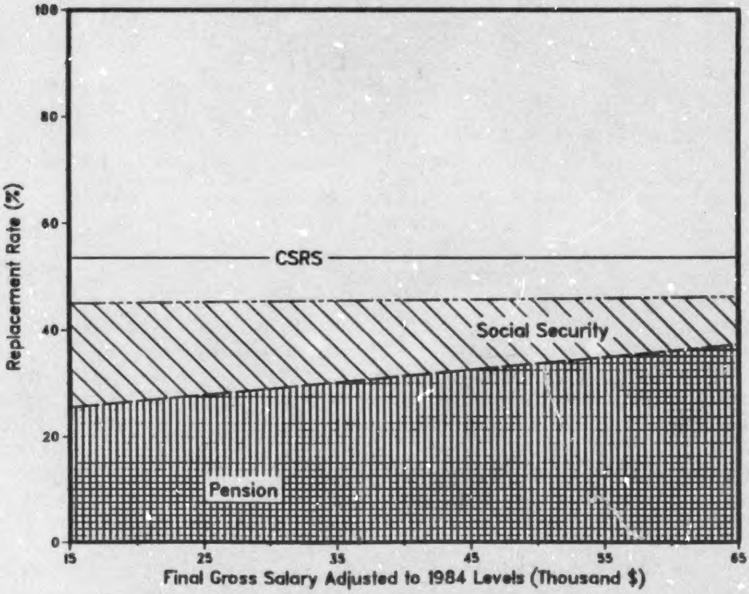


The figure shows how current CSRS replacement rates climb evenly for additional years of service, and at a faster rate than under a 50 percent offset plan. Rates climb around 20 percentage points for each additional 10 years of service. In comparison, a 50 percent offset plan shows replacement rates increasing by about 15 percentage points during the same 10 years. This difference in replacement rate gain for additional service reflects the distribution of plan expenditures to short-service workers. In a constant cost plan, the additional money flowing to the portable rights of separating employees will result in a lower accrual rate, the factor that determines the increase in replacement rates resulting from additional service.

Figure 4-9 shows the same backdrop plan but with an 83⅓ percent offset. Benefits more closely replicate the current system distribution across the income scale, but if IRS guidelines as to plan distributions are thought to be important restrictions on the design of Federal pensions to accompany social security, other modifications would be necessary for compliance. The IRS guidelines require that the offset percentage be adjusted to reflect ancillary provisions (such as disability and death benefits), or early retirement opportunities because of the differing effect the offset has upon these components. For instance, the extent to which benefits could be provided to higher income workers at age 55 might be limited because of the weight of overall distribution to these workers.

As Chapter 2 notes, by far the most frequent offset factor in the private sector is 50 percent, in part because of the freedom that factor provides in the design of other provisions. Almost all variations in retirement provisions or in ancillary components of pensions, if contained within a 50 percent offset plan would satisfy IRS restrictions on plan distribution. In addition, it has been suggested by various pension experts that employees more easily understand the offset concept when one-half of social security is subtracted, as compared to other percentage offset factors. It should be noted that IRS integration rules have not been revised since 1971, even though major revisions were made to social security in 1977 and 1983. Some critics suggest that IRS guidelines need to be reexamined.

FIGURE 4-9.—Eighty-Three and One-Third Percent Offset at Constant Cost: Gross Replacement Rates for a Single Worker Age 62 With 30 Years of Service



Two other aspects of the offset provision deserve note. Most workers do not spend their entire careers under one employer. Thus, it is potentially unfair to determine the offset by using the social security benefit earned over an entire career, and applying it to the pension benefit earned only through a specific employer. For all design alternatives with an offset, this study assumes that the offset would be prorated to reflect the employee's years of service with the Federal Government. For example, in all illustrations of service of less than 40 years, the proration factor will mean that in a 50 percent offset plan, the offset factor will equal 1.25 percent of each year of Federal service (50 percent divided by 40 years = 1.25 percent). Hence, a person with 20 years of service would have an offset of 25 percent (20 years x 1.25 percent) of social security applied to the Federal pension component.

An assumption had to be made about other earnings covered by social security for employees who spend less than a full career in Federal employment. Such an assumption is necessary because of the operations of the social security formula. In order to determine the value of social security benefits, a 40-year period is used,[43] even if no earnings are reported for some years. The IRS restricts the methods that can be used to impute earnings from other employment, and a recent ruling affirms the right of an employee to provide actual wage records.

When it is necessary for our illustrations to assume that a worker had employment before entering the Federal Government, the entering wage is projected backward in time using the wage assumption incorporated into the CRS model. Workers leaving Federal employment for other jobs are assumed to have career growth on the same path as if they would have stayed in Federal employment.

(2) *"Step-rate" plans.*—Under a "step-rate" plan, another approach to integration, workers earn benefits at a lower accrual rate for compensation up to a specified dollar amount, and at a higher accrual rate for compensation above that "integration breakpoint." While step-rate plans are fairly common in private sector employment, the distributional results of a step-rate do not differ significantly from those of an offset plan. Also, step-rate plans often do not automatically adjust for changes in the social security benefit, and given the annual adjustments to that program, step-rates can fairly quickly resemble add-on plans. Step-rates are sometimes more attractive to employees because they do not have the "negative" appearance of an offset in the plan formula. However, the most common private plan design is now a 50 percent offset.

If it is decided to explicitly integrate the retirement system with social security, then a step-rate plan has an important advantage over an offset plan. It is unnecessary to know or to estimate the social security benefit in order to determine the amount payable by the employer. This not only eases the administrative burden of the plan but also helps the employee to estimate the expected replacement rates without knowing the social security benefit.

On the other hand, employers tend to choose offset plans over step-rate plans because they automatically adjust to changes in social security. Many step-rate plans fix the integration level and periodically require amendment to keep the integration level in line with the social security benefits. When major changes are made to the social security benefit, or there are unexpected economic crests, the step-rate plan must be calibrated further in order to meet its initial objectives.

Largely because of the number of changes to social security in the last decade, employers have tended to choose the offset approach over the step-rate approach. The administrative problems of calculating the offset have mostly been overcome through modern computer facilities and estimation methods that are acceptable to the IRS.

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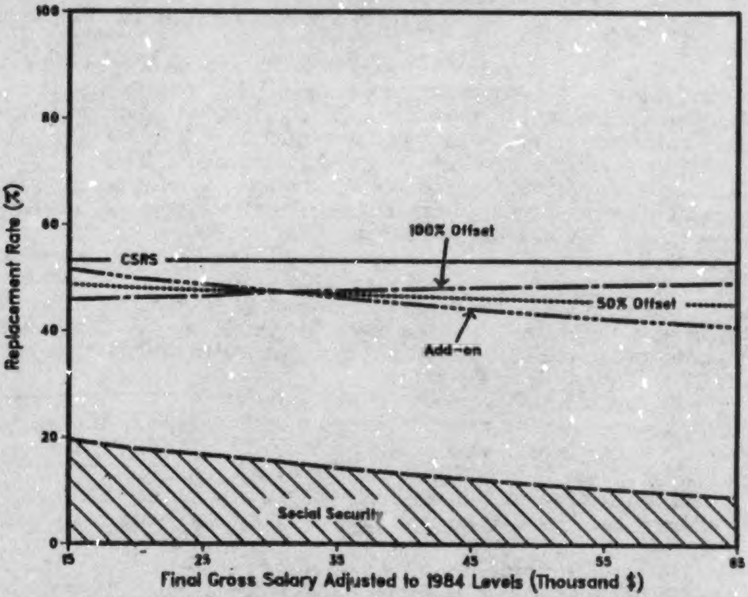
[43] The social security formula is a mature system (after 1990) will be applied to a salary base of the average of the highest 35 years of indexed earnings, from a career earnings span of 40 years. For further details on the social security formula see Appendix A.

By concentrating on an offset approach, CRS does not intend to rule out the eventual consideration of the step-rate plan. A step-rate plan can be designed to achieve the same initial design characteristics as an offset plan. Therefore, the analysis of the offset system can also be taken as a surrogate for the analysis of the step-rate system. CRS will develop and analyze step-rate plans if the need for such discussion arises.

c. *Comparison of major coordination approaches.*—Figure 4-10 compares the extent to which the various coordination approaches either maintain the uniform distribution of the current CSRS, or adopt the distribution tilt of social security for workers retiring at age 62. Some of these data are slightly different than in other sections because the costs were set precisely equal to show the effect of different coordination approaches. In this figure, the social security portion of the system is displayed as the underlying component in the total retirement benefit structure, so that the distributional effects of the coordination scheme can be easily compared. The add-on line parallels social security and the 50 percent offset line more closely maintains the current CSRS distribution. Note the upward tilt in the 100 percent offset plan caused by the interaction of the offset and the reduction for early retirement under social security because age 62 was chosen as the retirement age, and the offset was figured not on the benefits actually paid but on the full primary insurance amount (PIA). (The PIA equals the benefit amount payable to a worker initially entitled to a retirement benefit at age 65 (67 in 2030) and is used to derive other benefits.) As was discussed, for the offset design selected, higher-paid workers receive a relatively smaller share of their total benefits from social security, and are less affected by the reduction than are lower-paid workers. This upward slope would be eliminated for workers retiring at social security's normal retirement age, or if the offset were based on benefits actually received.

FIGURE 4-10.—Comparison of Coordination Approaches at Constant Cost: Replacement Rates for a Single Worker Age 62 With 30 Years of Service



The coordination lines intersect at around the $30,000 salary level. The average preretirement salary is about $29,000. Because these plans all cost the same, benefits provided the worker with an average preretirement salary generally will also be the same. The coordination techniques regulate the response of the pension to the redistributional aspect of social security. The greater degree of social security tilt that is reversed by the pension design, the more pension money will flow to workers with preretirement salaries above the average, at the expense of workers whose incomes are below average. As mentioned before, workers with average preretirement incomes will receive less than in the current system if costs are held constant, because of the other benefits paid by social security, and because average Federal wages are higher than the average wages covered by the Social Security program.

E. RETIREMENT AGE

One of the more important issues to be examined in any new design is the age at which employees would be eligible to retire. In the current system, employees are able to retire at age 55 with 30 years of service with unreduced benefits. In some cases, employees are forced to retire involuntarily as early as age 50 with 20 years of service, or any age with 25 years of service, or, under certain circumstances, are able to choose early retirement at these ages. Employees who retire at these ages receive reduced benefits. Retirement age provisions of the current system are a frequent target of critics who believe that CSRS should resemble more closely practices common to the private sector. As can be seen by the evidence in Chapter 2, private sector practice varies considerably on this point.

In most private plans, unreduced benefits are usually not payable until age 62 and, in many cases, age 65. Early retirement provisions are common, but most workers in private employment who retire early have "early retirement reductions" applied to their benefits at the time they are awarded. Many State plans, on the other hand, do provide unreduced retirement benefits at age 55, and a significant number of State government employees can retire at any age if they have 30 years of service.

The earliest age of eligibility for reduced social security benefits is 62, with full benefits currently payable at age 65; workers retiring at age 62 have their benefits reduced by 20 percent of what they would be if they elected benefits until age 65. The 1983 Amendments to social security, however, raised the retirement age for full benefits to 67 in two steps:

(1) Raised retirement age to 66 beginning in 2000 by increasing the age for full benefits by two months a year for six years so that provision would be fully effective beginning with those attaining age 62 in 2005 (66 in 2009).

(2) Raised retirement age from 66 to 67 by increasing the age for full benefits by two months a year for six years beginning in 2017 so that the provision would be fully effective beginning with those attaining age 62 in 2022 (67 in 2027).

Age 62 benefits would be maintained at an ultimate rate of 70 percent of full benefits, after age for full retirement is changed to 67.

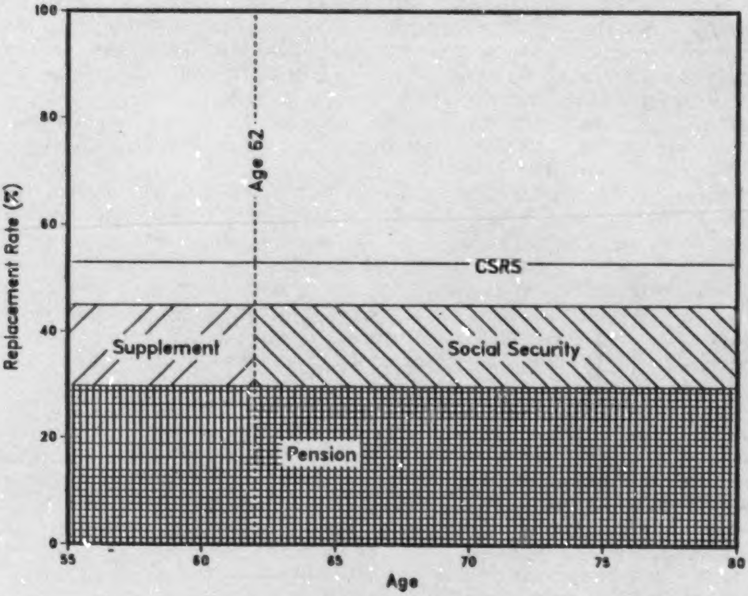
The following figures assume retirement in the year 2030. Thus, retirement before age 67, say, at age 55 with 30 years service (the earliest allowed by CSRS), assumes that either a much lower benefit will be received from age 55 to age 62 (or even until age 67), or that supplements equal to the amounts anticipated from social security would have to be paid until the social security benefit actually is received.

1. Retaining current retirement age

Figure 4-11 shows replacement rates for workers retiring at age 55 with 30 years of service at an approximately average final salary of $29,000 per year. This plan has been designed to replicate current CSRS retirement age provisions, and all other provisions have also been held constant. The benefit accrual rate has been tuned to establish costs approximately the same as the current system. As was shown in figure 4-10, for this worker with average preretirement wages the benefits would be the same under the various coordination approaches, with income redistribution for other salaries a product of whichever method is selected. To focus the discussion on retirement ages, $30,000 salary was chosen so that income distribution issues would not intrude upon retirement age issues.

The benefit in this example consists of three parts: A pension benefit, a social security benefit payable at age 62, and a supplement equal to the anticipated value of social security receivable at age 62. This "level life" supplement retains the concept of level real benefits over the years of retirement. A full COLA is presumed. Again, the lower benefit value at constant cost results from the distribution of social security benefits to provisions other than retirement for single workers.

FIGURE 4-11.—Backdrop at Constant Cost: Gross Replacement Rates for a Single Worker Age 55 With 30 Years of Service—$30,000 Final Salary



2. *Discouraging early retirement*

Discouraging early retirement reduces total lifetime benefits and accordingly cuts plan costs. Retirement age provisions control the tradeoffs in plan costs among workers retiring at different ages. A plan that encourages early retirement will more heavily distribute plan expenditures to those workers. If costs are held constant, a plan with provisions to discourage early retirement will distribute more money to older workers, thereby encouraging longer careers.

Full actuarial reductions for early retirement are based upon the equalization of present values for workers whose benefit computations yield the same benefits, but who are retiring at different ages. In social security, for instance, the age at which full benefits can be received is 65 (rising to 67 by 2027), but benefits can be received at 62. Reductions applied to benefits paid at 62 (20 percent) make the present value of the income stream approximately equal to that which would be received at age 65. In other words, the present value of benefits at 65 is presently nearly equal to those at age 62. In the future, when the age of full benefits increases to 67, the actuarial reduction will climb to 30 percent for benefits received at age 62.

In a plan in which benefits are based upon accumulated capital at retirement, such as a defined contribution plan, the present value of benefits is automatically equalized for retirement at different ages: The sum is the individual's account at retirement is used to purchase an annuity based upon the actuarial table that projects years of life after the age at which the annuity begins. In a defined benefit plan, the formula generally determines the amount to be received by eligible workers for each additional year of service. If other factors that determine annuity values are held equal in a defined benefit plan, benefits received by workers retiring at later ages will be less costly to the plan because they will be paid out over a shorter period than benefits of the same level received by workers retiring earlier.

One of the important functions of a defined benefit plan is to provide predictable benefit amounts. Workers can easily understand how pension levels rise for each additional year of service. The concept of a normal retirement age, then, implies that eligibility is held constant for all workers, and that annuity payments are equalized for service attained by that age. The age at which full benefits can be received is an important ingredient in the overall retirement plan objective: Workers tend to remain until that date and then retire soon afterwards.

The current CSRS permits retirement with full unreduced benefits at age 55 with 30 years of service, although additional value is earned for additional service. If, in a new plan, overall plan costs are held constant with those of the current CSRS, reducing benefits for retirement before age 62 will shift plan dollars to workers who retire at later ages. Full actuarial reductions would diminish the differences in the present value of benefits received by workers with the same service and salary base but who retire at different ages. Workers would tend to delay their retirement. Savings are achieved by (1) reducing the number of people entering the rolls, (2) lowering the present values of those who retire at earlier ages, and (3) extending the work life over which benefits are funded. If an employer desires a younger workforce, unreduced benefits at early ages will accomplish that goal.

Evidence from private sector plans shows that less than full actuarial reductions are sufficient to delay the age of retirement substantially. In a new Federal pension, full actuarial reductions would be about six percent for each year of retirement between age 55 and 62. Reductions at around three percent per year would subsidize workers retiring early, but the value of additional service and any anticipated salary increases, when combined with the prospect of reductions, would encourage civil servants to work to later ages.

Early retirement can be discouraged in numerous ways. Some are listed in table 4-4 which deals with a 50 percent offset plan. It shows projected savings that could be expected if a larger number of workers delayed retirement in response to the harshness of a penalty for early retirement.

As table 4-4 shows, when workers are eligible to retire at age 55 and are granted a supplement equal to social security payable beginning at age 62, many can be expected to retire immediately. Benefits under this plan would remain level for life, because of postretirement COLA and because of the absence of any disparity in replacement rates between retirement and social security eligibility, the point at which the supplement ceases. Because such a supplement is of no value unless the worker retires in time to receive it, evidence from private sector plans having such supplements shows that many workers exercise their option to retire upon becoming eligible. Based upon evidence developed from the current CSRS, Hay-Huggins Company, Inc., estimates that 36 percent of such workers would retire within the first year after becoming eligible.

Another crucial provision affecting the decision to retire is the point at which any offset is applied. The pension could be computed with the offset of social security benefits applied only when they begin, or the social security benefit amount could be estimated and applied immediately at retirement even though several years remained until the earliest age of social security eligibility. Because the latter case provides much lower replacement rates between retirement and the age at which social security kicks in, worker retirement decisions are affected accordingly.

TABLE 4-4.—VARIOUS METHODS OF DISCOURAGING EARLY RETIREMENT IN 50 PERCENT OFFSET PLANS, THEIR EFFECT ON RETIREMENT RATES AND PLAN COSTS

[In percent]

Provision	Rate of retirement in first year of eligibility	Projected saving to plan [1]
Full retirement at age 55, full supplement, offset applied at 62	36	([2])
Full retirement at age 55, no supplement, offset applied at 62	18	0.7
Full retirement at age 55, no supplement, offset applied immediately	6	1.4
One-half actuarial reduction between 55 and 62, no supplement, offset applied at 62	4	2.7
One-half actuarial reduction between 55 and 62, no supplement, offset applied immediately	2	3.4
Full actuarial reduction, no supplement, offset applied immediately	1	4.3

[1] In percent of pay savings from constant cost.

[2] Constant cost.

Figure 4-12 compares replacements rates for workers retiring at age 55 with 30 years of service, under a backdrop plan and under a plan with a one-half actuarial reduction, (three percent per year under age 62). This later plan also does not provide a supplement provided for the anticipated social security benefits payable at age 62, and the 50 percent offset of social security benefits is applied at 55. (Savings of 3.4 percent of pay are projected when these changes are introduced into the backdrop plan.) A full actuarial reduction would save 4.3 percent of pay, compared to the constant cost of backdrop plans. In this case, the savings were used to increase the accural rate from 1.45 percent to 1.71 percent per year of service.

FIGURE 4-12.—Early Retirement Reduction at Constant Cost: Gross Replacement Rates for a Single Worker With 30 Years of Service—$30,000 Final Salary

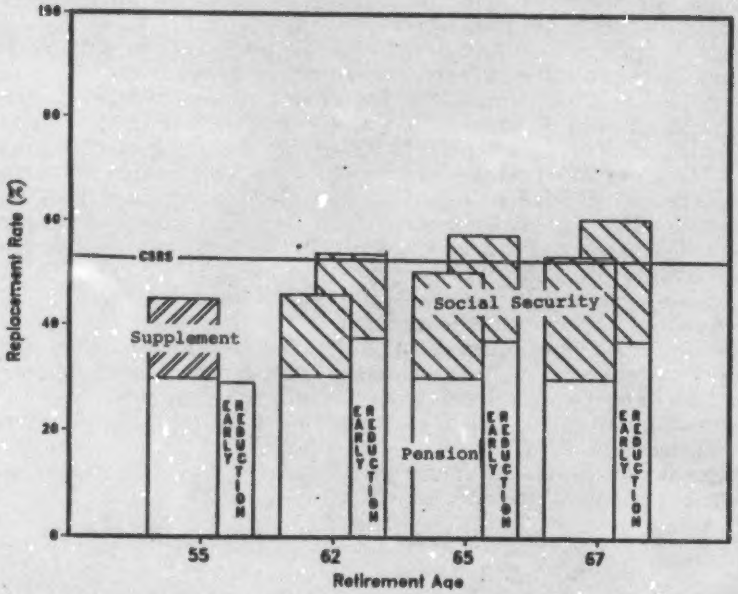


Figure 4-12 shows the effect upon replacement rates of redistribution between workers retiring earlier and workers retiring later. The primary bars in the figure show replacement rates in the 50 percent offset backdrop plan. The secondary bars show a plan with early retirement reductions. Because the salary is near the average retirement salary, add-on plans would show similar results. If these one-half actuarial reductions were applied to retirement at age 55 with 30 years of service, and the savings were used to increase the overall plan generosity, thereby raising costs back to the original backdrop level, benefits for workers retiring at later ages would be higher.

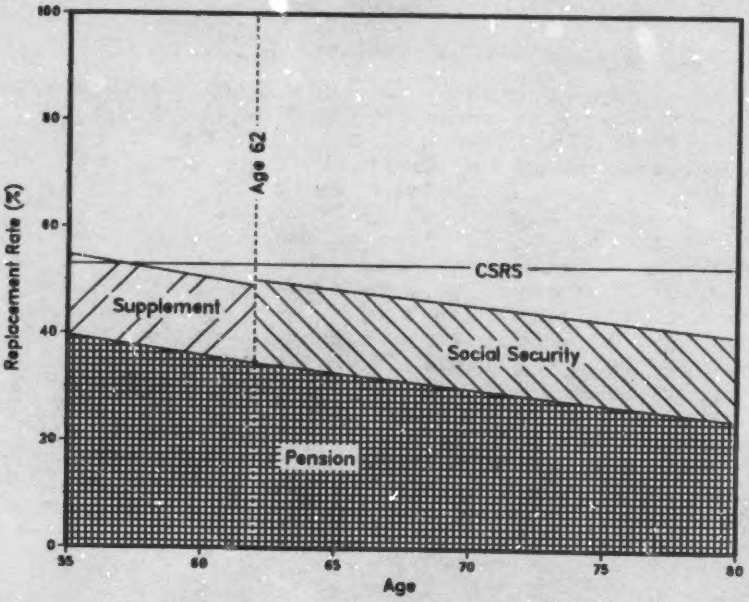
In this example, the worker receives a gross replacement rate from the backdrop plan alone of about 30 percent of all ages. Because the social security benefit increases for retirement at later ages, total gross replacement rates climb from about 45 percent at age 55 and 62 to about 54 percent at age 67 when reductions to social security benefits would not be applied. In the plan with early retirement reductions, the overall replacement rate at age 55 would be 29 percent of gross salary, rising to 45 percent at age 62 when social security benefits begin. If retirement is delayed until age 62, the replacement rate is 53 percent, and by delaying retirement until age 67 a worker at this salary and service would receive a 61 percent replacement rate. These examples assume 30 years of service, and reflect the increase in the accrual rate from the savings achieved by introducing the reductions for early retirement. Of course, actually delaying retirement means increases in benefits from the additional service, and salary increases.

F. COST-OF-LIVING ADJUSTMENTS (COLA)

Under current law, annuities are adjusted annually to changes in the Consumer Price Index (CPI). Congressional action in recent years has reduced the index for younger retirees and delayed the timing of the adjustment as much as seven months but permanent law continues to specify full and automatic adjustments annually. These changes in cost-of-living adjustments (COLA) cut the real benefits of the affected workers and reduced the cost of the system below what it would have been otherwise.

Figure 4-13 represents the benefits payable under a backdrop plan with 50 percent COLA applied to the pension instead of full COLA. As in figure 4-11, the benefit consists of social security, pension and supplement from age 55 until age 62. The figure displays a near average final salary of $30,000 so that distributional effects from differences along the salary scale do not affect the COLA analysis. Reducing the COLA to 50 percent would save 4.3 percentage points in normal cost compared to an identical plan with full COLA. Savings are achieved by the reduction in postretirement adjustments, and also because some workers would continue working to later ages.

FIGURE 4-13.—Fifty Percent COLA at Constant Cost: Gross Replacement Rates for a Single Worker With 30 Years of Service—$30,000 Final Salary



In the years after retirement, the pension benefit declines as a portion of total benefits. Social security is projected to be fully indexed, thereby holding its value over time.

By comparing figures 4-11 and 4-13, the effects of restoring the savings achieved from COLA cuts to the overall benefit generosity can be seen. Because the inflation assumption is constant, the rate of unindexed benefit erosion is a straight, but declining line. The benefit declines to 45 percent of final pay by age 70, which would be the average replacement rate received by this worker in a plan fully indexed as in figure 4-11.

The benefit begins at age 55 as a replacement rate of about 55 percent. A supplement between age 55 and 62 is provided by the plan, and thus it follows the same adjustment path as the pension; after age 62 only the basic pension declines as the fully adjusted social security benefit begins. The total replacement rate drops from 55 percent at age 55 to 40 percent at age 80.

The trade-off, then, between a half and full COLA at constant cost is to increase benefits for workers when they retire while reducing them during later ages. This feature might be attractive to workers anticipating high expenses in the early years after retirement as they travel or pursue other expensive interests, but it might cause hardship for the very elderly who may face increasing medical expenses and depletion of investment income. Indexation is valued by retirees because inflation is hard to predict. Unlike early retirement reductions, the impact of which is known in advance, COLA reductions introduce greater uncertainty into retirement decisions.

Private sector COLA practice varies widely. The portion of the benefit arising from social security is fully indexed but the remainder is only indexed, if at all, through periodic ad hoc increases granted at the discretion of plan sponsors. Chapter 2 findings show that benefit increases offset around 30 percent of the loss in purchasing power due to inflation over the period 1973 to 1979, in plans taken to be representative of comparable non-Federal practice.

G. CAPITAL ACCUMULATION PLANS AS A DISCRETIONARY SUPPLEMENT

One of the important developments in the pension field in recent years has been the increasing popularity of capital accumulation plans as a supplement to the main defined benefit plan and social security. According to the findings in Chapter 2, about three out of four of the largest companies provide such a supplement.

These capital accumulation plans provide design alternatives that can accomplish certain objectives. At the same employer cost, amounts directed to the "automatic" portion of the benefit design (the pension plan) relative to the voluntary part (the capital accumulation plan) can be varied. Basically, the plans encourage employees to save toward their own retirement income. If Federal retirement expenditures under a new Federal system are tilted to lower incomes, or toward retirement at later ages, voluntary capital accumulation supplements would allow other workers to compensate for some or all of the relative loss by saving more (reduced consumption) during working years.

1. Illustrations of capital accumulation plans

The capital accumulation plans that CRS has designed for this report are modeled after a plan known as a "401(k)" plan. The plan, which supplements primary defined benefit plans in the private sector, takes its name from the section of the Internal Revenue Code that governs it. The 401(k) plans provide favorable tax treatment to employees by deferring taxes on employee contributions until retirement. These contributions are deductible from taxable income during the years in which the income is earned. Because employer money can be used to encourage this otherwise voluntary participation, Federal tax law governs the extent to which these plans can favor higher-paid workers. The IRS guideline specifies that employer contributions to the plan for the higher-paid third of the workforce can average no more than two to three percentage points higher than the average contribution on behalf of the lower-paid two-thirds of employees.

Capital accumulation plans increase a worker's discretion. The employee chooses to save more or less. Capital accumulation plans also can be vehicles for workers who would like to develop an investment portfolio. Many private employers who sponsor supplementary capital accumulation plans provide several investment choices so employees can invest their assets as they prefer. Participants in some plans are permitted to borrow against their assets in advance of their actual retirement. This borrowing opportunity can be an important feature for families with housing expenses, high medical bills, or need for college educations. In the examples that follow, investment issues have not been addressed. Issues arising from Federal employee investment for retirement are discussed in Appendix B. These voluntary supplements have been analyzed strictly as discretionary devices that allow the employee greater control over retirement planning. Thus, the rate of growth in these investments is determined by the same economic assumptions used for all other analyses.

a. The concept of constant employer cost.—In the illustrations that follow, the capital accumulation plan cost is estimated, and the generosity of the main retirement plan is then reduced to a constant employer cost. The reason for adopting a constant employer cost in this section is to show the effect upon replacement rates of employee contributions to a capital accumulation plan and to compare them to contributions the employees now make to CSRS. Employer cost is defined as the total value of plan benefits minus all employee contributions. For instance, in the current CSRS the baseline *total* cost of 32.2 percent of pay is reduced to an *employer* cost of 25.2 percent when the employee contribution of seven percent is deducted. In a new retirement plan designed to accompany social security, a constant employer cost, including the employer share of social security cost, would also be 25.2 percent. In this study, the employer cost of social security is equal to the employer social security tax as a percentage of total payroll, or 6.1 percent of total payroll. Subtracting that amount from 25.2 percent yields a constant employer cost for the pension alone of about 19.1 percent of pay, normal cost. That figure is taken to represent the Federal Government's cost of the pension benefit component, if the government's share of retirement costs for the alternative system, including social security, is to be held constant at the level of its cost for the current system. This figure becomes the target cost to be achieved by calibrating accrual rates.

b. Estimated capital accumulation costs.—Costs of the capital accumulation plans in this study depend on the participation rate of individuals. Such rates, expressed as "percent of full participation," are influenced by two features of the plan: The rate at which employee payments to the capital accumulation plan are matched by employer payments, and the ceiling on employee contributions eligible for such matching dollars. Some employees will contribute the full amounts permitted by the plan specifications, others only some, still others not at all. The percent of full participation is the net average of full participation after all full, partial, and zero contributions have been combined.

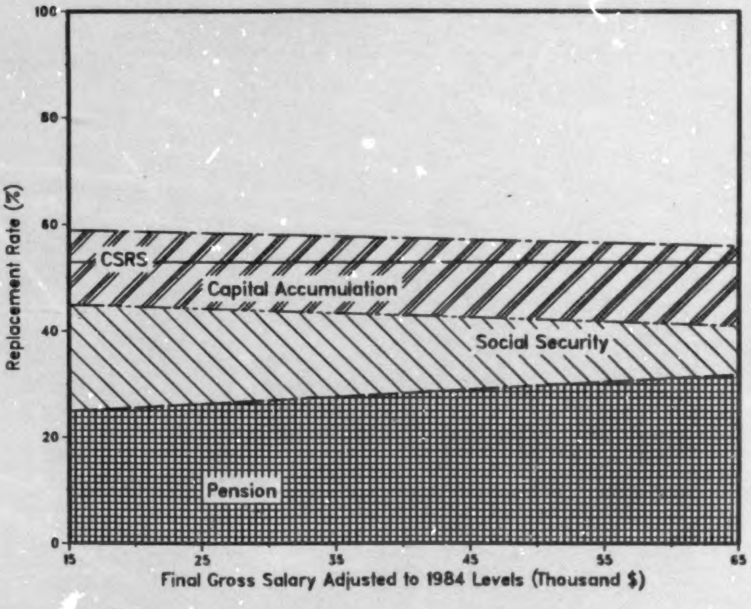
The cost in this study to the Federal Government of the capital accumulation plans is established by multiplying the estimated matching rate specified for the plan by the estimated percent of full participation. For example, a plan with a 50 percent employer match of employee contributions to six percent of pay is estimated to acquire a 55 percent average full participation. Multiplying that rate times the maximum government match (three percent) yields a Federal Government cost for the plan of 1.65 percent of pay. Documentation of the method for arriving at the variable used for the capital accumulation cost assumptions can be found in Appendix C.

2. Using capital accumulation plan to diminish the social security "tilt"

In a previous section, the distributional effects of the social security formula were shown in combination with an "add-on" and a "50 percent offset" approach to coordination.

a. Offset plans shown with voluntary supplements.—In figure 4-14 a 50 percent offset plan is combined with a voluntary capital accumulation plan. The plan is defined as a 50 percent match up to an employee's contribution of six percent of pay. The average rate of full participation is 55 percent, and the government cost is 1.65 percent of pay. All other provisions are held constant, and the generosity of the plan has been tuned so that the *employer* cost, defined as the projected normal cost of the basic plan, plus the assumed normal cost of social security, plus the projected average cost of the capital accumulation plan approximates a total normal cost of 25.2 percent of pay.

FIGURE 4-14.—Fifty Percent Offset and Capital Accumulation at Constant Cost: Gross Replacement Rates for a Single Worker Age 62 With 30 Years of Service

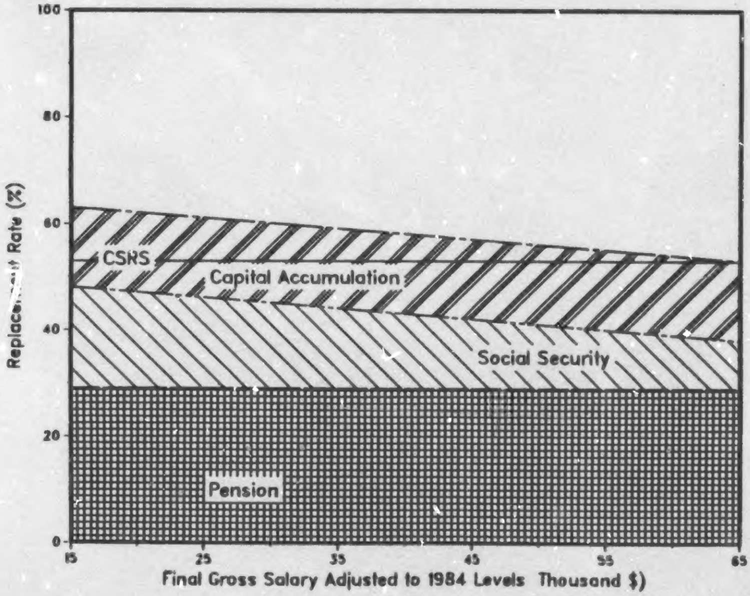


The 1.65 percent of pay for the capital accumulation plan can be gained through a wide variety of adjustments. This illustration assumes that the gain is achieved through a reduction in the accrual rate of 1.45 percent to 1.35 percent per year of service.

The figure shows the effect upon benefits of participating in the plan. Employees contributing at the maximum amount (six percent of pay) would have higher replacement rates at all salary levels than they would receive under the current CSRS. At the end of a 30-year career these employees would have accumulated sufficient capital to purchase, at age 62, an annuity replacing about 15 percent of the gross preretirement salaries. Of course, their disposable income during work years would have been lower because of the amounts submitted to the capital accumulation plan. Employees who did not participate would receive about 26 percent less replacement of their salaries. Because full participation is assumed to be more likely at higher salaries, the relationship between the two lines gives some appreciation of how this capital accumulation plan can diminish the effect of the social security tilt.

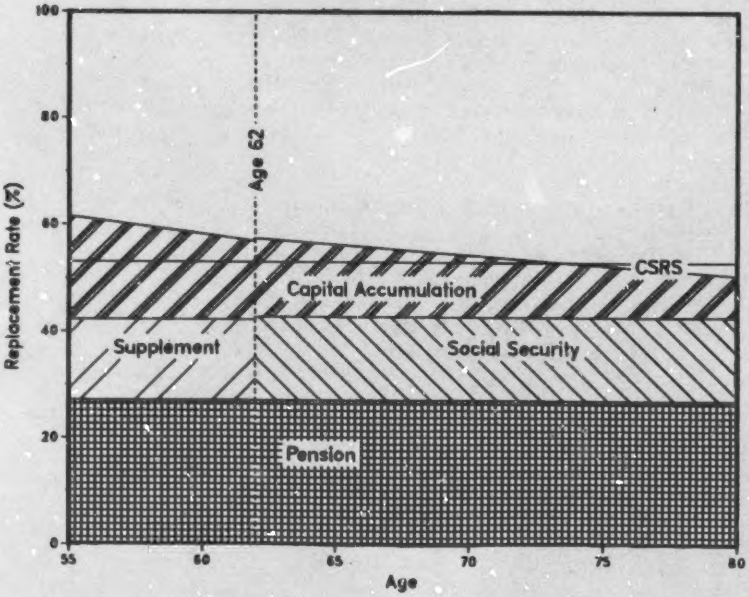
b. Voluntary plans shown with add-on.—Figure 4-15 shows the effect upon the distributional tilt of the social security formula when the same capital accumulation plan is used in combination with an add-on plan. All other aspects of the plan, including cost, are held constant with the plan shown in figure 4-14. In this case the accrual rate is reduced from 1.13 percent to 1.03 percent per year of service.

FIGURE 4-15.—Add-on Plan and Capital Accumulation at Constant Cost: Gross Replacement Rates for a Single Worker Age 62 With 30 Years of Service



Because of the different propensity to save among employees at different salary levels, this design can have a pronounced effect upon the social security tilt, and is thus a significant benefit alternative for higher-paid workers if the add-on approach to coordination with social security should be adopted.

FIGURE 4-16.—Backdrop Plan and Capital Accumulation at Constant Cost: Gross Replacement Rates for a Single Worker With 30 Years of Service—$30,000 Final Salary



Figures 4-14 and 4-15 are based upon capital accumulation plans that are indexed to pay level values over the years. Alternatively, the employee could greatly increase the initial annuity by choosing a level dollar (nominal) annuity. Figure 4-16 shows this effect for a worker retiring at age 55. Figure 4-16 shows the erosion of the value of the capital accumulation plan during the years after retirement in an unindexed annuity paid for life. (Later figures will demonstrate alternative payout structures.) The annuity value is purchased at retirement by the lump sum of the accumulated employer/employee contributions plus accrued interest earnings. The annuity value is the actuarial relationship betweeen the lump sum at retirement and the projected years after retirement based on an assumed discount rate. The backdrop plan components (social security and the defined benefit pension plan) retain constant value in this example because they are indexed.

3. Capital accumulation plans: assuming risks

These employees are shown retiring at age 62 with 30-years service. The replacement rates for employees participating in the capital accumulation plan are derived by dividing the accumulated contributions and interest earnings in the plan at retirement by an annuity factor based on a discount rate and the number of years of life remaining, according to the actuarial tables developed for workers within the demographic profile. All projections in this study are, of course, sensitive to the economic assumptions used in the projections, but if the assumptions are held constant, useful comparisons can be made. However, it is worth noticing that replacement rate presentations of capital accumulation plans also are directly dependent upon the specifications used for that presentation. For example, workers with identical careers and salaries at retirement, but who are at different ages when they begin drawing benefits would have different replacement rates, because of the different actuarial assumptions as to the years of life remaining during which the annuity will be paid.

Other assumptions also affect the value of these plans at retirement. These examples show a "typical" worker, who enters at the average entrant salary, and who retires at the average preretirement salary after having spent a career progressing through the salary grades at an average pace. Alternative career paths produce different rates of accumulation and thus different replacement rate projections. Most postal workers, for example, have relatively "flat" career paths. Amounts saved by them in capital accumulation plans will appear substantially more valuable, as a percentage of preretirement salary, than the same percentage of salary saved by a worker whose career growth begins low but progresses into higher grades by retirement. The latter worker's early career contributions are lower relative to the higher salaries late in the career than for the worker with a flatter scale.

An important analytic point is thereby raised: The employer share of capital accumulation plan contributions would be a part of the Federal Government's cost of the total retirement system. These plans are added at a cost that is then subtracted from the amount available for payments from the main defined benefit plan. This transfer of a portion of the total benefit costs from a defined benefit plan to a plan that is essentially a defined contribution plan would also be a transfer of some of the risks in retirement benefit costs and expectations from the government to Federal workers.

The examples of capital accumulation plans developed for the study are analyzed with risk aspects removed. Economic assumptions are held constant as if the accumulating assets are invested in Federal securities and grow at the same rate as costs and benefits of the basic plan; career paths are held constant as if all workers progressed at the same average rate to an average final salary. In an actual capital accumulation plan, retirement benefits could be affected, perhaps even profoundly affected by actual events, both in the economy as a whole and in the individual's own experience.

One of the primary advantages of a defined benefit plan is that risks of economic uncertainty are borne by the employer, an institution capable of enduring economic shocks and with the capacity to absorb unpredictability in costs that occur when benefit levels are guaranteed percentages of final incomes. Capital accumulation plans transfer risk to the employee: Benefits depend upon investment performance and general market health, risks inherent in building capital wealth with a specific goal in mind.

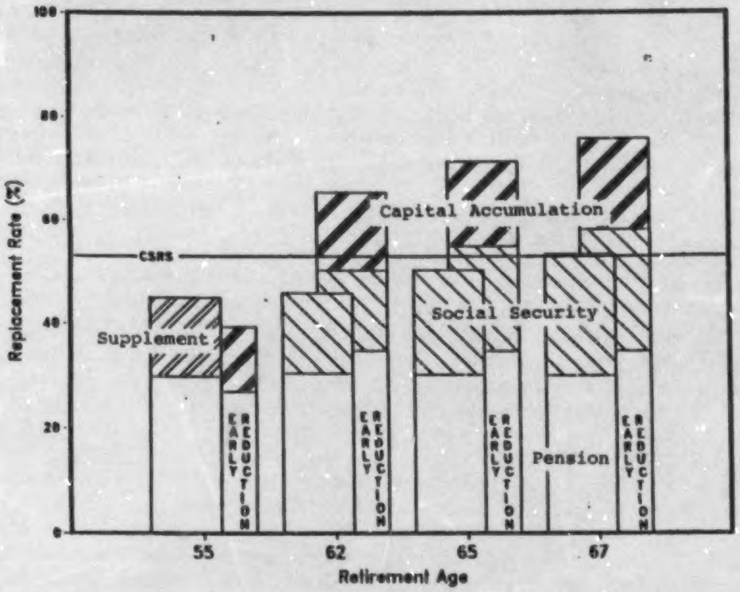
The proper consideration of capital accumulation plans as potential features of a new retirement system requires an understanding of these transfers of risks. From a strict economic standpoint, these plans affect the economy only to the extent they increase employee savings and thus the nation's capital pool. In the long run, aggregate costs and average benefits of the two types of plans are shown to be the same because they are based on identical economic assumptions. The difference between these two types of benefit structures is upon individual cases: Some workers will do better and others worse as a result of assuming the economic risk inherent in capital accumulation. A further discussion of the issues of risk in capital accumulation plans can be found in Appendix B.

4. Using a voluntary capital accumulation plan to counter changes to early retirement

A capital accumulation plan could be used with either an add-on or an off-set plan to provide opportunities to save voluntarily for early retirement. This design would permit employer costs to be used to encourage later retirement by providing higher benefits for workers who remain employed to later ages. Workers would still be permitted to retire early, but with reduced pension benefits. Thus, these workers would need to save to achieve benefit levels comparable to those provided in the backdrop plans.

In figure 4-17, the primary bars represent a backdrop 50 percent offset plan (at this approximately average final salary an add-on would look about the same). A supplement is provided for retirement at age 55. The secondary bars represent a plan in which benefits for workers retiring at age 55 with 30 years of service are not supplemented for anticipated social security benefits and the offset is applied immediately. Furthermore, one-half of a full actuarial reduction (three percent per year under age 62) is imposed on benefits of persons retiring at age 55. The projected savings of 3.4 percent of pay from these changes to the backdrop plan have been restored to the plan represented in the secondary bars in two ways. First, a capital accumulation plan with a 50 percent match of employee contributions up to six percent of pay was added at an estimated cost of 1.65 percent of pay to the Federal Government. Second, the remainder of the savings (1.75 percent of pay) achieved from the introduction of early retirement reductions was used to increase the accrual rate from 1.45 percent to 1.60 percent so that plan dollars would be redistributed to employees who retire at older ages and/or with more service.

FIGURE 4-17.—Backdrop Plan With Early Retirement Reduction and Capital Accumulation at Constant Cost: Gross Replacement Rates for a Single Worker With 30 Years of Service—$30,000 Final Salary



In figure 4-17, the primary bars show projected benefits at different retirement ages under a backdrop plan. Retirees would receive 30 percent in gross replacement from the basic pension regardless of the age at which they retired. The social security benefit increases for retirement ages after age 62 because reduction factors in that program for early retirement diminish with retirement at later ages. The alternate bar shows that this worker with near-average preretirement income would have lower benefits from the basic plan (27 percent) at age 55, but at age 62 would receive total benefits from the plan plus social security (42 percent) that would exceed those of the backdrop and nearly reach those of the current CSRS. A worker with the same salary and service, but who retires at age 62, would receive 50 percent from social security and the pension, a total close to that payable from the current CSRS.

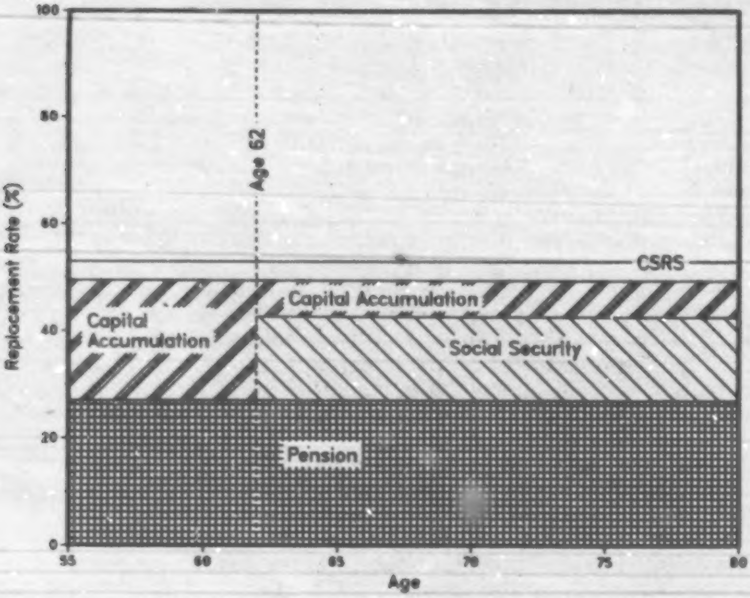
Note that these figures show additional benefits for later retirement ages without additional service. If workers chose not to retire and to continue working, the additional service would enhance their benefits even more. In the case shown here, a worker with 30 years service would receive about 34 percent from the unreduced formula in the backdrop plan. If the individual retired at age 55 under the alternative plan, that amount would be reduced to about 27 percent of final pay. If the individual worked another seven years at the same salary, the benefit would climb to 42 percent because of the additional service and absence of reductions. The value of increased service in this example is about 4.1 percent for each additional year in combined service increase and diminished reductions for early retirement. Of course, the additional service also would increase the value of the social security benefit as well.

Figure 4-17 also shows that retirement at later years with the same service causes higher benefits from the capital accumulation plan; actually, the present value of future benefits payable from the lump sum in the voluntary supplement at retirement is the same at all ages shown. The monthly payment values would be higher for workers retiring at later ages because on an actuarial basis the payments would be paid for a shorter period of time.

Capital accumulation plans can provide a means by which the employee is able to plan for early retirement. In figure 4-17, the accumulated amount in the capital accumulation plan at retirement is used to purchase an indexed full-life annuity. Although total benefits payable at age 55 in this example do not match those of the backdrop plan even with full participation, that is partly a result of the absence of a supplement. Because benefits would increase substantially upon the payment of social security at age 62, an actuarial equivalent supplement could be designed at no additional cost to the plan, that "levelled-out" the replacement rate. The employee could be provided an option in which lower replacement rates after age 62 are "accepted or traded" for their actuarial equivalent value in higher replacement rates before age 62.

In figure 4-18, this concept is used to construct a payout specifically tailored to accompany a backdrop plan payable at age 55 with no supplement. No other changes are made. The level-life replacement rate in figure 4-18 approaches that of the current CSRS because this example shows an employee whose contributions are higher than would be paid to the current CSRS by approximately five percent of pay. If the capital accumulation plan were designed to defer taxes on the employees' contributions then the net contribution after tax would be less than 5 percent.

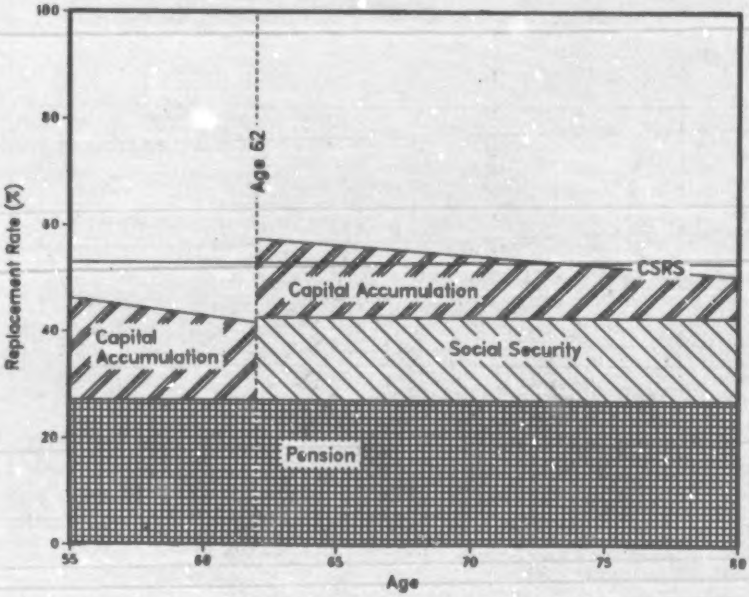
Figure 4-18.—Backdrop Plan and Capital Accumulation at Constant Cost: Gross Replacement Rates for a Single Worker Age 55 With 30 Years of Service—$30,000 Final Salary



In figure 4-18, the annuity from the capital accumulation plan has been structured to pay a higher indexed benefit from age 55 to 62 equal to anticipated social security benefits and the remainder of the accumulated assets are indexed and paid out evenly over the entire retirement. An employee delaying retirement until age 62 or later would have a significantly higher replacement rate.

In figure 4-19, the lump sum amount in the capital accumulated plan at retirement is used to purchase an unindexed full life annuity. The employee is assumed to have participated fully in the plan since the beginning date of employment. The annuity can be seen to decline in value over the years after retirement. Combined benefits at age 55 are not so generous as those of the current system but near the levels of backdrop plans. The replacement values jump at age 62, when social security benefits begin. Remember that in these examples average preretirement salaries are being shown. Replacement rates at other salary levels would be affected by the method chosen to coordinate with social security.

FIGURE 4-19.—Backdrop Plan and Capital Accumulation at Constant Cost: Gross Replacement Rates for a Single Worker Age 55 With 30 Years of Service—$30,000 Final Salary



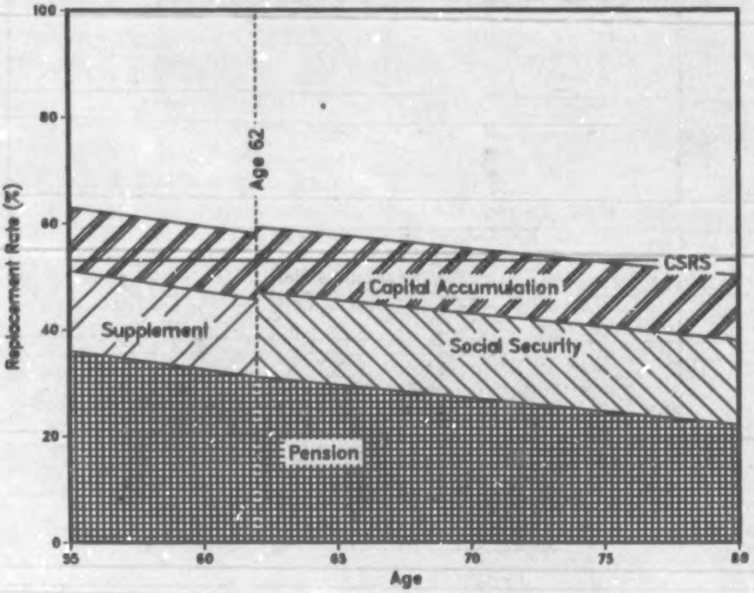
The inflation rate used in all projections in this study is four percent per year. Thus, the retiree could also be given the choice between an annuity fully indexed or one with a guaranteed increase of four percent per year. In the latter case, the employee loses if inflation exceeds four percent and is better off if inflation stays below four percent. Both cases are projected to cost the same. Either approach implies a balanced risk for both annuitant and the institution selling the annuity. However, the potential gain to the employee in case of zero inflation is limited to 4.0 percent while the upside risk is, at least theoretically, unlimited because there is no absolute limit on inflation.

5. Using capital accumulation plans to offset reductions in COLA

The voluntary capital accumulation plan can also be used in conjunction with reductions to COLA. All features are held constant, including employer cost, so that the effects of participation can be seen if COLA is reduced to one-half of the CPI.

Figure 4-20 shows a constant employer cost plan in which the savings from a reduced COLA have been used to pay for a dollar-for-dollar capital accumulation plan. The COLA on the pension is one-half of the CPI changes and is paid annually. An indexed supplement is provided to workers retiring at age 55, equal to the indexed social security benefit payable at age 62.

FIGURE 4-20.—Backdrop Plan With 50 Percent COLA and Capital Accumulation at Constant Cost: Gross Replacement Rates for a Single Worker Age 55 With 30 Years of Service—$30,000 Final Salary



The capital accumulation plan is indexed at a rate equal to inflation. The retiree depicted in this plan is an average income worker. As was discussed earlier, income distribution would depend upon the technique used to coordinate with social security. If an offset approach were followed, lower-paid Federal workers would receive smaller portions of their total income from the pension portion than would higher-paid workers. Thus, higher-paid workers would have relatively greater advantages in purchasing their inflation protection by participating in a capital accumulation plan combined with an offset integration approach.

The foregoing examples of altenative payouts of capital accumulation assets are all actuarial equivalents. On an actuarial basis the schemes have the same present value to the employee and the same cost to the employer. It is important to remember that these examples show employees with full participation in the capital accumulation plan over their entire careers (and with the risk removed). Employees could vary their participation (with a corresponding increase or decrease in the spendable income) as the capital in the plan accumulated at rates differing from their expectations or in ways other than the projected outcomes.

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6. Early payouts from capital assets

Capital accumulation plans use some employee and employer money to create a pool of capital that belongs to the employee. These plans not only enhance retirement benefits for those who participate, but also provide greater portability to employees who leave before retirement. Capital accumulation plans have much earlier vesting requirements and employees are able to take the full value of accumulated capital with them when they resign. Furthermore, in the private sector employees often have the right to borrow against accumulated amounts.

Private sector capital accumulation plans, but not defined benefit plans, often permit participants to borrow against their accumulated assets with various requirements for repayment. In some cases, plans restrict this opportunity to employees who experience a need for large sums of money at some point in their careers, for medical expenses, down payments, or educational expenses for children.

It would also be conceptually possible to grant to employees while they were still employed, a portion of their accrued rights in a defined benefit plan in the form of capital. Under such an arrangement, the employee would be given the right to draw upon some portion of the accrued present value of future benefits at various points in the employee's career. These rights could be portable, and they could be treated as assets to which the employee is permitted access. The value of the "capitalized" rights could be restricted to a portion of the computed present value of future benefits. This design could be structured to have no effect upon plan (normal) costs; actual budget costs would occur earlier if future benefit values are granted in advance.

Employees could be permitted to draw some portion of the present value of their accumulated assets in advance of their actual retirement. At retirement, replacement rates would be computed after taking into consideration the full value, at retirement, of all money withdrawn earlier. The effect upon cost of granting this advance payment would be limited to the timing of payments: The present values could be equalized, but a portion of the payout would occur earlier.

Another variation on this arrangement would allow employees to use some of the accrued present value of their defined benefits before retirement, to supplement their income during extended periods off the job, or to invest in small businesses or other income-producing assets that could allow the employee to "phase in" a transition from full-time work to full-time retirement.

Table 4-5 compares the effect upon ultimate benefits at retirement if an employee is permitted to withdraw some plan value as capital in advance of the normal retirement age (in this case, 55 with 30 years of service). The illustration assumes that the employer would have received a level life replacement rate of 45 percent in the absence of any withdrawal. These variations are shown at constant cost in a 50 percent offset backdrop plan such as that shown in figure 4-11.

TABLE 4-5.—EFFECT UPON REPLACEMENT RATE AT RETIREMENT OF DRAWING A PORTION OF PRESENT VALUE OF FUTURE BENEFITS IN ADVANCE FOR AN EMPLOYEE ENTERING AT AGE 25

Withdrawn at age 35	Withdrawn at age 45	Combined social security and pension replacement rate at age 55 (percent)
0	0	45
$15,000	0	43
0	$30,000	41
15,000	30,000	39

Note: A supplemental equal to social security is assumed to be payable between ages 55 and 62.

III. DESIGNING DISABILITY BENEFITS

A. INTRODUCTION

Since January 1, 1984, newly hired Federal workers have been covered by the provisions of social security's disability insurance program. Workers hired before that date by and large are not eligible for social security disability insurance, and are protected instead by the quite different provisions of the current civil service retirement system. Designing a new Federal retirement system coordinated with social security clearly requires development of a complementary disability program.

As consistently applied throughout this report, analysis begins by studying private sector and State government practices. Private sector organizations and those State governments whose employees are covered by social security have designed their disability plans to complement social security disability coverage. Design issues are highlighted by the different ways the private sector, State governments, and the current CSRS treat disability, and by how coverage with social security is coordinated with these systems. Basic differences between Federal and non-Federal practice are:

—The current CSRS grants disability retirement immediately if an applicant's disability prevents him from performing his job effectively. Private sector plans and social security, on the other hand, pay benefits after a designated waiting period if the worker is disabled for work in any occupation.

—The current CSRS has a more liberal work test and usually pays benefits longer after recovery than does social security.

—Social security pays benefits to dependents of disabled workers, whereas CSRS does not.

—Many social security recipients in the private sector are also eligible for disability benefits from a pension plan or insurance provided by their employer. These benefits combined with social security often initially replace a higher proportion of earnings than do CSRS benefits.

—Private sector plans typically provide greater protection against temporary disability.

The cost of the current CSRS disability program for individuals under age 65, 3.0 percent of payroll, is comparable to the cost of the disability provisions of most private sector plans combined with social security.

B. TYPES OF DISABILITY PRACTICES

Design of disability benefits begins by examining the features of social security and private sector and State government practices, and comparing them to the current CSRS. (Appendix A describes these current practices in detail.)

1. Private sector and State government disability practices

Private sector and State government employers generally provide short- and long-term income protection against the risk of disability. Long-term protection may be provided through the pension plan, a long-term disability (LTD) insurance plan, or both. LTD plans are contracts with insurance carriers that provide disability benefits for employees. They are funded separately from the retirement system. LTD insurance benefits become available after short-term disability benefits have expired. They typically pay about 60 percent of predisability earnings for as long as the disability continues or until the individual reaches retirement age and begins to receive benefits under the regular pension plan. Benefits from most LTD plans are reduced by the amount of other compensation, such as workers' compensation, social security, and pension benefits.

Only five States have LTD insurance plans, according to the General Accounting Office (GAO). The other States provide for disability payments from the retirement plan.

When disability coverage is part of the pension plan, plan benefits may be payable immediately, or they may be deferred until the disabled employee reaches the plan's regular retirement age. Plans with immediate disability pension benefits usually calculate their amount under the regular pension formula. The majority of the States provide immediate disability pension benefits.

Deferred payments are most often used when employees are also covered by LTD insurance plans. Credits toward pension benefits are usually granted to these disabled workers until they are eligible to begin receiving pension benefits. Most employees have to have at least 10 years of service to be eligible for disability benefits under the pension plans.

Disability pension benefits usually are integrated with social security disability insurance benefits. Internal Revenue Service integration rules state that no more than 64 percent of the social security benefit may be offset by the pension plan; 50 percent is typical.

2. "Representative" private sector disability practice

Private sector disability practices vary but some features are sufficiently prevalent that they are "representative" of private sector practice. A representative private sector plan would include a temporary disability program that would provide benefits after sick leave is exhausted, and would use an occupational definition of disability similar to that in the current CSRS. This short-term protection would be combined with a long-term disability program that would go into effect six months after onset of the disabling condition. Beginning 24 months after onset, long-term disability benefits would be provided under a stricter definition of disability similar to social security's. They would replace about 60 percent of predisability pay including a 100 percent offset of the initial social security primary insurance amount (PIA). No cost-of-living adjustments (COLAs) would be provided. When workers reach retirement age, the LTD would cease, and benefits from the regular pension would begin. The retirement benefit would be based on the workers' nominal earnings and years of service, projected from first employment to retirement age (including years of disability).

3. Current civil serice retirement system

Under the current CSRS, employees are eligible for disability retirement at any age if they have completed five years of service and are unable, because of disease or injury, to perform the duties of their specific job. (See Appendix A for a detailed description of the disability provisions of the current civil service retirement system.)

The civil service retirement system disability annuity begins immediately after eligibility is established. The amount of the annuity is the larger of:

—the benefit computed under the standard CSRS retirement formula,

—the smaller of 40 percent of the high-3 average salary, or the annuity that would have been paid if the employee had continued working until age 60 at the same high-3 pay.

After entitlement, disability annuities are fully adjusted for inflation. There are no additional benefits for dependents of disabled workers.

4. Replicating the current Civil Service Retirement System

A new Federal pension system could be designed to replicate the benefits of the current CSRS as closely as possible. In general, provisions would reflect current law, but would be modified to accommodate the effect of social security coverage. Such a plan would grant disability retirement benefits immediately when the applicant is unable to do his or her own work. The recipient would be required to apply for social security benefits, for which he would qualify only if he were disabled for any work. The social security benefit, if payable, would begin after the five-month waiting period, and all social security benefits, including those for dependents, would be subtracted from the CSRS benefit.

This approach would minimize the differences between the current CSRS and the new Federal system. A replicated system would be easier to administer since many of the eligibility standards would be identical. In addition, a replicated system would minimize any difficulty that might arise if workers in similar circumstances are covered by disability programs that have different eligibility requirements or provide substantially different benefits.

To the extent the current system is replicated, however, the new system would diverge from private sector disability practice. Federal laws regulating private pensions would not permit establishment of a 100 percent offset of social security benefits. (Private employers are able to offset 100 percent of benefits provided by LTD insurance plans that are not considered as part of the regular pension system.)

It may be difficult to justify the preservation of an occupational definition of disability in a new system to which social security has been added. It may have been easier to justify paying individuals under a more liberal definition of disability when they were not covered by social security anyway, but there will probably be more reluctance by the public under the new system to accept that an individual covered by social security disability but unable to qualify for its benefits can nevertheless receive full CSRS disability benefits.

Replicating the current system would require keeping track of all social security benefits paid to the entire family, with constant adjustments for differing cost-of-living increases, deductions for excess earnings from work, and changes in family composition—all difficult administrative tasks.

C. DESIGN ISSUES FOR DISABILITY BENEFITS IN A NEW SYSTEM

This section identifies and analyzes the important issues that have to be resolved in designing disability benefits for a new Federal retirement system. Analysis of these issues takes into account criteria against which a successful disability program should be judged. A Federal program providing disability benefits for its employees should:

- —Promote the efficient use of employee resources;
- —Meet the needs of its workforce;
- —Minimize the resentment from longtime or new workers because they participate in different systems, one of which may be perceived to be less attractive.

1. Adequacy of benefits

Disability and survivor benefits serve a somewhat different purpose than do retirement benefits; they provide insurance against *unexpected* events, whereas regular retirement benefits provide for an *anticipated* event. Civil service retirement benefits have traditionally resembled straight annuities, with benefit levels strictly related to years of service and earnings in the highest three consecutive years. Such a computation will lead to very low benefit levels for short-term workers who die or become disabled. Thus, current CSRS law provides minimum guarantees that yield larger benefits than the regular formula. In this way the current CSRS somewhat parallels the social goals of social security, which bases benefit levels on replacement of average career earnings lost at the time of retirement, disability, or death rather than strictly reflecting the degree to which a person had contributed to the social security system. The CSRS minimum guarantees also are similar in concept to the flat percentage replacement of earnings under LTD insurance policies used in the private sector.

As described previously, many private sector employers provide for disability benefits as part of the pension plan rather than through LTD insurance. The benefits usually are computed based on service up to the onset of disability, and thus the replacement rate of the pension benefit may be fairly low for short-term workers. Because Federal regulations allow a maximum of only 64 percent of social security benefits to be offset, however, the combination of social security and a benefit from the pension plan may be judged adequate (essentially because the social security benefit formula is weighted toward low-income workers and is structured to replace lost income). Nevertheless, in these situations, the shorter the term of employment, the lower the combined social security and pension usually will be.

A fundamental philosophical issue is the degree to which the new CSRS disability benefit structure should provide "adequate" benefits as opposed to benefits closely related to workers' service or payments made to the retirement system. In this context, the current system attempts to do both by providing guarantees for short-term workers and accrued benefits to long-term workers.

However, the current CSRS's disability structure does not consider differences in employee characteristics or presumed need. Both high- and low-income workers receive the same replacement rate, with no additional benefits for dependents. Social security disability benefits are heavily weighted in favor of low-paid workers and those with dependents, but they also are related, if somewhat weakly, to the individual's earnings covered by the program. The social security benefit formula thus reflects some measure of both elements of "social adequacy" and "individual equity." These elements must also be considered in designing a CSRS disability retirement system.

Long-term disability insurance clearly emphasizes social adequacy by providing relatively generous benefits and by offering protection for the short-term employee. This is done by essentially disregarding length of service in computing benefits and requiring only minimal vesting time. It protects employees usually considered the most vulnerable; young, short-service workers who often have growing families. The LTD approach is simple and straightforward because its concept is simple; a flat percentage of pay is replaced and usually all other compensation is offset, usually by 100 percent. As is typical with insurance arrangements, this appears to provide the greatest payoff to those who quickly encounter the risk insured against. However, a capital accumulation plan that could pay the account balance upon determination of disability obviously would more greatly benefit longer-term workers. Moreover, social adequacy elements of the LTD approach decline if the typical 100 percent offset of social security is applied, because there is no redistribution of income and therefore no recognition of different replacement rates possibly needed by high- and low-income employees. A lower offset, coupled with a lower replacement rate for the LTD (to keep costs in line), would obviate this objection, although such a practice is rare in the private sector when LTD insurance is used.

On the other hand, arrangements that strictly relate benefits to length of service would provide much lower benefits for short-term employees. This approach, if applied to a new Federal system, could follow the private sector practice of offsetting only part of the social security tilt, thus distributing relatively greater benefits to lower paid workers.

2. Level of benefits

Social adequacy, discussed above, refers to distribution of benefits among high- and low-paid, and long- and short-term, workers. Another aspect of benefit adequacy is the basic level of the CSRS benefit itself. Ideally, this level should be high enough to ensure an adequate standard of living, without being so generous that it discourages disabled workers from trying to reenter the work force.

The current system has been criticized because its benefit levels are less generous than those provided by many private sector disability plans combined with social security. LTD's typically provide replacement of 60 percent of predisability earnings; civil servants under the current system, on the other hand, can receive 60 percent of their high-3 only if they have 32 years or more of service. If a 60 percent replacement rate were guaranteed for long-term disability (using the social security definition of disability and offset by 100 percent of the social security disability benefit), the cost of the provision would be 1.84 percent of payroll. It would be harder to qualify for this disability retirement program, but those who qualify would receive higher benefits.

3. Minimum guarantees

The current CSRS combines the flat percentage replacement feature of LTD insurance plans, which benefits short service workers, and a pension based on accrued or projected service, which provides greater protection to long service workers. If this hybrid arrangement were superimposed on the new CSRS, it would increase the proportion of disability benefits calculated by using the minimum guarantees, because the lower accrual rates inherent in the new system would increase the amount of time needed before the accrued benefit would exceed the guarantee. For example, employees in the current system with fewer than 22 years of service receive higher benefits from the 40 percent minimum. If the accrual rate under the new system were 1.5 percent per year, the actual accrued benefit would not exceed the minimum guarantee for almost 27 years. If the minimum guarantee replacement rate were set at 60 percent, about the level of a typical LTD insurance plan, the time for the actual accrual to exceed the guarantee would be 40 years.[44] However, if a high offset of social security were used, like the 100 percent in LTD insurance plans, and a lower offset were used for retirement benefits, actual total replacement rates for disability beneficiaries would not necessarily be out of line when compared to retirement benefits for employees with medium to long service.

Another approach would be to eliminate the minimum guarantees and rely totally on social security to provide adequate benefits for short-career workers. This approach would provide accrued benefits only and would be offset by social security. This would lower costs from 2.6 to 1.8 percent of pay. It would move the CSRS toward individual equity, but could adversely affect short-term workers, particularly those with gaps in their social security coverage.

If an LTD insurance-type scheme were adopted, a minimum guarantee would be inherent because everyone would receive a set percentage replacement of pay, regardless of length of service.

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[44] If the current CSRS hybrid system were adopted but 60 percent substituted for the 40 percent minimum guarantee, it would rarely be applicable. The other part of the minimum guarantee—projection of service to age 60—would apply because it would produce the lower benefit.

However, minimum guarantees or fixed-rate replacement rates, when used to compute disability benefits, sometimes produce a higher benefit than will be payable when the individual attains retirement age. One of the reasons part of the current CSRS minimum guarantee calculates benefits by projecting service to age 60 is to prevent disability benefits from being higher than retirement benefits for older, less-than-full career workers. A similar alternative computation could be included in a new Federal system. For example, if an LTD insurance-type arrangement were chosen, an alternative to replacement of, say, 60 percent of pay (or actual accrued benefit if higher) would be to project service to the normal retirement age and thus pay the benefit that would be payable upon retirement. This has the advantage of removing the incentive to seek disability retirement by older, less-than-full career workers, and it avoids a sudden benefit decline upon conversion from disability to retirement. This decline would occur because retirement benefits are based on earnings from work that have been eroded by inflation over the years.

Such an arrangement, however, is definitely disadvantageous for short-term older workers. Because short-term older workers cannot expect a disability benefit from previous employment, the combination of social security and CSRS disability benefits may be small. There are other objections to this alternative computation. First, if the social security definition of disability is applicable, it will be much harder than under current law to become eligible for disability retirement. Second, this issue has not altered the structure of social security benefits: Ever since early retirement benefits were offered, an individual at age 62 has received 80 percent of his social security PIA, whereas a worker who qualifies for disability at that age receives 100 percent of PIA. Third, this situation exists in private sector LTD insurance arrangements. Part of the reason conversion to a lower benefit at retirement age is not considered unreasonable in the private sector is that the social security offset is removed or lowered (usually from 100 to 50 percent). At that point, too, other pensions to which the individual is entitled become payable.

4. *Definition of disability*

The definition of disability is a most fundamental issue in the redesigned program. The current CSRS defines disability as inability to perform the worker's particular job. This is more liberal than social security which judges a disability applicant's ability to perform any job. (The administration of the current CSRS, however, has been tightened somewhat in recent years; initial rejection rates have risen from two to 15 percent, and only 17 percent of retirees were disabled in FY 1982, compared to 26 percent in FY 1981.) The current definition could be extended to the new system; but this would diverge from private sector practice. Private sector plans typically use the social security definition, although short- and intermediate-term disability often are granted on the basis of the more liberal occupational definition.

A stricter definition of disability would affect Federal personnel practices by requiring managment to deal with a category of worker theoretically absent from the Federal work force: the employee unable to do his own job efficiently because of a disabling condition but who does not meet the social security definition of disability. Critics of the current CSRS have claimed that some Federal managers, wishing to fire incompetent or unmotivated employees, have retired them on disability rather than going through cumbersome Federal dismissal procedures. This practice would be curtailed under a new system with a stricter definition of disability. To keep a partially disabled employee more or less fully productive, job restructuring would have to be expanded and expeditious ways established to place the employee in a position where his condition did not impair his ability to do the job. (The job presumably would be at a lower grade, but perhaps saved-pay provisions could soften this loss of income.)

A representative private sector plan initially would determine disability on an occupational definition and later (after about two years) would use the social security definition. If this arrangement were incorporated into the new Federal system, employees would first exhaust sick leave and then would be entitled to an intermediate-term disability benefit. This benefit would extend up to 24 months and would pay 30 percent of the employee's pay. (The social security disability benefits the individual received during this period, if any, would be totally offset.) To receive benefits beyond two years, workers would have to meet the social security definition of disability. With social security disability benefits offset 100 percent, as they would be under an LTD-type arrangement, such an option would cost 2.6 percent of payroll.

A variation would continue to pay benefits after two years if an occupational definition of disability were met, but at a reduced rate. This variation would aid the partially disabled worker who cannot be placed in a government job.

5. Treatment of social security benefits

The treatment of social security disability benefits affects both aspects of social adequacy: how the benefits are distributed and the levels of the CSRS benefits themselves. Most LTD plans offset 100 percent of the social security disability benefit. If disability benefits are included in a pension plan in the private sector, however, the offset of social security must be 64 percent or less. Most States add the disability pension benefit to the social security benefit.

Integration of social security with benefits from a new Federal retirement system affects the distribution of benefits along the income scale, not just for disability but for all types of benefits. A consistent integration approach would use the same integration rules for all types of benefits in the retirement system. There are particular features of disability benefits, however, that suggest the idea of treating disability integration differently from integration of the basic retirement benefits. For example, one issue is whether the social security disability benefit should be prorated to the amount of time spent working for the Federal Government. Such apportionment makes sense in designing the integration of social security and CSRS *retirement* benefits because otherwise workers with short careers in the government would have their benefits reduced, perhaps to zero, by a social security benefit whose value is mostly attributable to work outside the government. Also, workers may acquire rights to more than one pension during the career and it seems inequitable to reduce each pension by a social security benefit that is based on the worker's entire career. Workers do not qualify for more than one *disability* pension, however, and by definition, a completely disabled worker has less than a full career. In fact, his entire work history may consist of working for the government for as little as five years. There is little rationale for prorating the social security benefit on a projected full career (assumed to be 40 years) because it could reward short-term workers at the expense of lonprivate sector

TABLE 4-6.—COMPARISON OF DISABILITY BENEFITS FOR 5-YEAR AND 20-YEAR WORKERS

	5-year worker	20-year worker
Hi-3 salary	$20,000	$20,000
40 percent guarantee	$667	$667
Social security	$600	$600
Ratio of years for offset	5/40	20/40
Amount of offset	$75	$300
Net CSRS benefit	$592	$367
Total benefits (CSRS and social security)	$1,192	$967

Under such proration, a young worker with five years of service before becoming disabled would have only five-fortieths of his social security disability offset. His social security benefit would be approximately as large as that of a full-career disabled worker with the same average earnings because social security is designed to replace lost income from work. Thus, if the five-year and a 20-year worker both had the same average earnings (approximating a $20,000 "high-3"), their social security benefit would be similar, perhaps even identical, at, say, $600 per month. Under a minimum guarantee approach their CSRS disability benefit, before offsetting for social security, would be the same. Under the 40 percent guarantee, initial computation of the CSRS benefit would be $666.67 a month (high-3 of $20,000 times 40 percent equals $8,000, divided by 12 equals $666.67). If the offset were prorated, the five year worker would receive a CSRS benefit of $591.67—$666.67 minus $75.00 (five-fortieths times $600) equals $591.67—whereas the 20-year worker would receive $366.67—$666.67 minus $300.00 (twenty-fortieths times $600.00) equals $366.67.

Nevertheless, the social security disability benefit can be based in part on work outside the government. A compromise position would be to apportion the amount of the career spent in government employment up to the time of onset of disability. Private sector LTD plans do not prorate, however; the entire social security benefit is subtracted from the benefit.

The use of guarantees, or flat rate replacement of income as under LTD plans, argues in favor of subtracting from CSRS disability benefits 100 percent of total social security disability benefits. The 100 percent offset avoids inequities and complications such as in the above example, and the guarantees and flat-rate replacement plans can be considered generous enough to negate the need for the supplementation that occurs when a lower offset is used. If redistribution of benefits to lower income workers is desired, however, the minimum guarantee or LTD insurance-type flat replacement rate could be lowered and combined with a less than 100 percent offset of the social security benefit. With a 25 percent minimum guarantee, plus a 50 percent offset, a $15,000 high-3 worker would receive about $500.00 a year in CSRS benefits ($15,000 times 25 percent equals $3,750, minus 50 percent of a social security benefit of, say, $6,500, or $3,250, equals $500). A $40,000 high-3 worker would receive a CSRS benefit of $5,800 ($40,000 times 25 percent equals $10,000, minus 50 percent of a social security benefit of, say, $8,400). Combined social security and CSRS benefits would then replace a higher proportion of predisability income for the lower paid worker ($6,500 in social security plus $500.00 in CSRS equals $7,000, which is divided by $15,000 equals 47 percent) than for the higher paid worker ($8,400 plus $5,800 equals $14,200, which divided by $40,000 equals 36 percent).

An add-on arrangement similar to those used by many States would preserve the redistributive tilt of social security. Because if costs are held constant the accrual rate in an add-on plan is inherently lower than in an offset plan, guarantees set at the level of those contained in current law would almost always be higher than actual accrued benefits. These, combined with social security payments, would make disability benefit replacement rates very high, as would LTD insurance-type arrangements. Lower or no guarantees could resolve this problem. If minimum guarantees or LTD-type benefits were applicable, the disability benefit could treat social security differently from the rest of the pension scheme by offsetting the social security benefit, probably by 100 percent. A new CSRS design of disability benefits featuring an add-on benefit structure with the current occupational definition of disability, no minimum guarantees and no offset of social security benefits, would cost 1.12 percent of payroll.

The amount of social security to be offset also raises the issue of whether to include social security dependent benefits. Private sector plans usually offset the PIA alone not only for administrative convenience but also in recognition that families need more benefits than single individuals. As mentioned before, replication of the current CSRS would require offsetting dependents' social security benefits as well.

6. Disability provided outside the retirement system

If LTD insurance is chosen as a model for protecting workers from disability under the new CSRS, the method the private sector uses to finance LTD insurance may be considered also. Employers typically purchase LTD insurance for employees from private insurance companies. They also usually bear the cost (according to Hay-Huggins, 64 percent of LTD plans are paid for by the employer, 14 percent by employees, and in 22 percent of the LTD arrangements the costs are shared). The costs of providing LTD insurance coverage is not included in the cost of the pension plan.

If LTD insurance for Federal employees were adopted, its cost should be considered part of the overall cost of the new CSRS. This is obvious if it is provided by the government as employer. If the cost is borne or shared by employees, their contribution would be analogous to part of the employee contribution under the current system. Separating out the cost may be useful, however, in comparing costs of the CSRS to private sector arrangements that do not include LTD coverage in their pension system costs.

Whether or not the cost of LTD insurance is borne by the employee or the employer can affect tax liabilities. If employees purchase the insurance with after-tax dollars, the benefits are free from income tax. The benefits may be subject to significant taxation if provided by LTD insurance paid for by the employer.

7. *Intermediate-term protection*

A fundamental difference between the private sector and the Federal Government lies in the treatment of nonpermanent disabilities. The private sector generally provides a variety of arrangements, in the short, intermediate and long term, to replace income lost due to disability: usually a combination of sick leave, accident and sickness insurance, and long-term disability protection.

The current CSRS has less protection against intermediate-term disability than many private sector plans. Each full-time employee receives four hours of sick leave every two weeks, or 13 days a year, which may be accumulated for future use. Accumulated sick leave days are designed to cover both short- and intermediate-term absences. In addition, an employee may be advanced up to 30 days' sick leave at the discretion of his supervisor and may also be advanced annual leave up to the amount he will earn during the rest of the calendar year. The employee must pay or earn back such advances if he leaves employment or resumes work, but the advances are forgiven if he is granted disability retirement or dies. This arrangement is the primary financial protection of employees for illnesses and injuries of short or intermediate duration.

Because employees can exhaust their sick and annual leave during recurrent illnesses or recuperation from illness or injury, they sometimes are forced to choose between going on leave without pay or applying for permanent disability. If an employee exhausts accrued and advanced leave before recovery from illness or disability, he may be without any income. If the employee chooses to apply for disability, on the other hand, there is no guarantee that he will be reemployed or that he will be given back his previous job.

Whether a new civil service system should provide treatment similar to private sector practice for workers with short-term disabilities is an important issue. Intermediate-term protection in the private sector usually is provided by sickness and accident insurance or other forms of temporary disability insurance. Such plans typically pay 50 to 70 percent of prior earnings up to six months after sick leave is exhausted. Federal workers could be granted similar protection. To protect the short-term employee, eligibility could be immediate. If length of service is a factor, different percentages of salary could be replaced depending on years of employment. A straightforward 60 percent of salary plan similar to private sector practices, and granted to all employees for up to six months, would cost of 0.1 percent of payroll.

A related issue is whether a waiting period should be imposed for permanent disability retirement, as is usually the case in private sector arrangements. The waiting period is intended to ensure that a claim is valid before long-term benefits are paid. In the meantime, benefits are provided by sickness and accident insurance. If the benefits payable under intermediate-term protection were greater than those under permanent disability, a mandatory waiting period would be to the advantage of employees.

An objection to providing intermediate protection is the possibility that employees who are seriously disabled and planning to retire might try to extend their stay on intermediate disability in order to receive its higher benefits. This would hinder Federal managers in replacing these employees. Management safeguards against such "gaming" of the system may be difficult to develop. A way to avoid such problems would be to make intermediate- and long-term disability benefit levels identical.

When should employees become eligible for protection against disability under the new CSRS? The current system's five-year requirement is similar to social security's recency-of-work requirement (except for young workers), is less stringent than most private pension arrangements, but is stricter than that provided by LTD insurance. The current CSRS arrangement does not pay benefits to workers with less than five years of service. Social security provides insured status to young workers (those under age 31) with as little as 6 quarters of coverage credit, which theoretically could be earned in a minimum of two days of employment. Among current practices, the LTD insurance arrangement, whereby an employee usually becomes eligible in less than one year, clearly provides the best protection against disability for new employees.

8. Projected service age

Currently one part of the guaranteed minimum provision in the CSRS computes years of service by determining what the annuity would have been if the employee had continued working until age 60 at the same high-3 pay. Such projection of service is common in private sector practices, but the age to which the service is projected is usually the normal retirement age—the earliest age at which full retirement benefits are paid. Age 60 is used in the current CSRS system because after that point the disability minimum guarantee would often provide a higher benefit than the retirement benefit; that is, if the projected age were higher, there would be incentive for individuals eligible for retirement after age 60 (i.e., they have at least 20 years' service) to seek disability retirement because the minimum guarantee could produce a higher benefit.

A logical treatment in the new CSRS would be to project service to the retirement age considered "normal." Choices would be age 62, when social security retirement benefits are first available, or the normal retirement age in social security (currently age 65 but due to rise gradually to age 67 in the first part of the next centruy). On the other hand, if the new CSRS were to designate a different age at which unreduced beneftis were first available, that probably should be deemed the normal retirement age and be used as the age to which service is projected.

9. Indexation of benefits

A clear difference between the current CSRS and the vast majority of private pension plans is the way benefits are adjusted to compensate for increases in the cost of living. As menticned before, CSRS benefits are fully compensated for inflation. Virtually all private sector pension arrangements are not, relying instead on *ad hoc* increases that are usually significantly less than the inflation rate. Erosion of benefits by inflation is countered in part, however, by social security COLAs. Protection is enhanced to the extent that LTD and pension plans offset the initial social security benefit only, without regard to later social security COLAs.

If CSRS disability benefits are to be treated like disability benefits in the private sector, then benefit increases will not be fully adjusted for inflation. If benefit increases were half the yearly increase in the Consumer Price Index (CPI), the cost of providing disability benefits under the current occupational definition would decrease by 0.3 percent of payroll. If the more rigid social security definition of disability were used, as described under "Definition of Disability" (see page 298), costs would decrease by 0.1 percent of payroll.

A crucial aspect of inflation protection for disability beneficiaries, however, is that some may be on the rolls for decades if disabled while young. A less than full COLA would permit a major erosion of their benefits over time if inflation were significant.

If disability benefits are indexed, conversion from disability to retirement benefits upon attainment of retirement age would often produce a sharp drop in benefits because the retirement benefit would be based on earnings that have decreased in value over the years. This drop would be partially reduced if the offset of social security benefits were lowered at retirement. (When converting from a LTD plan to a retirement benefit a private sector plan typically drops the offset from 100 to 50 percent.) One way to solve this problem is to index the worker's earnings to wage growth, as is done in social security. (This practice is viturally non-existent in the private sector.)

10. Rehabilitation services

In the private sector some LTD plans have provisions that are intended to encourage the disabled individual to return to work. Rehabilitation provisions typically state that partial benefits will continue when the recovery of an employee would be hastened by his or her return to part-time or other rehabilitative employment. Often the LTD benefit otherwise payable is adjusted so that the total income from all sources (including the rehabilitative employment), does not exceed a certain proportion (e.g., 80 percent) of the employee's previous salary.

Rehabilitation services are obtained through several different arrangements, and the Federal-State Rehabilitation Program in every State offers some services. Some insurance companies also have rehabilitation programs and staffs, or they subcontract rehabilitation cases to private firms.

The current CSRS neither requires nor provides for rehabilitation services. Critics contend that this omission weakens the socially desirable goal of returning disabled but potentially functional workers to the workplace. A problem with the current system, however, is that when a worker has medically recovered and seeks reemployment, there is no guarantee that he will be hired, so there may be no real payoff if rehabilitation efforts are successful and enable more employees to be able to return to government work. Other action may be necessary to grant these workers reemployment, such as counting them against their former agency's personnel ceilings if a good faith effort to rehire them is not undertaken.

Social security requires that disabled persons applying for a determination of disability must be promptly referred to State vocational rehabilitation agencies for rehabilitation services. The Social Security Act provides for withholding of benefits for refusal, without good cause, to accept rehabilitation services. Therefore, stipulating that the social security definition of disability must be met automatically ensures that vocational rehabilitation will be required.

D. COST OF VARIOUS OPTIONS

The backdrop plans used in this study included disability retirement schemes like that of the current CSRS, with any social security disability benefit offset 100 percent. The cost of the disability retirement plan in the backdrop was 2.6 percent of payroll. Table 4-7 shows differences in costs, expressed as a percentage of payroll, if the options described previously are adopted.

Table 4-7.—*Costs of Design Options for Disability Benefits, etc*

[Difference in cost (percent of payroll)]

1. Replicate current CSRS disability provisions and benefits with social security offset 100 percent	0.0
2. Similar to option 1, but provide only accrued benefits	−0.8
3 Provide 60 percent of predisability earnings once paid sick leave is exhausted, payable after six months only if the social security definition is met, less 100 percent of the social security disability PIA	−0.7
4. As 3 above, but provide higher of 40 percent of predisability earnings or accrued benefit	−1.8
5. Provide 60 percent of predisability earnings once paid sick leave is exhausted, for 24 months if an occupational definition is met and after 24 months only if the social security definition is met, minus 100 percent of social security PIA	0.0
6. Provide sickness and accident protection for up to six months at 60 percent of pay	+0.1
7. Provide one-half COLAs using the current CSRS disability provisions and benefits	−0.3
8. Provide one-half COLAs under option 4 above	−1.9

E. CONCLUSION

Designing disability benefits for a new Federal retirement system presents many issues. The disparities among current practices in the public and private sectors open a wide range of choices.

Moreover, because disability may strike at any time in a work career, differences in disability retirement systems will be more readily apparent to old and new workers than will differences in retirement benefits. The difficulty of having workers side by side under different systems is inherent in all aspects of designing a new system, but at least the vast majority of new Federal hires will not retire for many years. Disability and survivor benefits under the new system will probably begin to be paid shortly after implementation, and the perceived advantages of one system over another may lead to resentment. Compounding this problem is the probable implementation of different short- and long-term sick leave arrangements, because they could affect a large portion of the workforce within a relatively short time.

The choices involve trade-offs. When the current CSRS disability retirement system is compared to other practices in the private sector, it is apparent that one of the most important trade-offs is the provision for larger benefits, with stricter eligibility requirements.

IV. DESIGN ISSUES FOR SURVIVOR BENEFITS

A. INTRODUCTION

Social security coverage of Federal employees automatically entitles dependents of retired and deceased Federal workers to social security survivor and family benefits. Therefore, survivor and family benefits provided under a new pension plan for Federal workers should be designed to take account of benefits available from social security. This section presents the issues to be addressed in designing a survivor benefit plan for Federal workers with social security coverage. Comparisons are made with survivor benefits available under typical private pension plans and with benefits available to the survivors of workers who will continue to be covered under the current CSRS.

B. COMPARISON OF SPOUSE AND SURVIVOR COVERAGE UNDER THE CURRENT CSRS, SOCIAL SECURITY AND PRIVATE PENSIONS

Current Federal employees earn survivor benefits only from the current CSRS, since workers hired for permanent Federal positions before January 1, 1984, do not accrue social security coverage for their government service. Federal workers hired after that date will be eligible for benefits much like those workers in the private sector who have both social security and pension coverage.[45]

Table 4-8 compares spouse and survivor coverage available to new Federal workers from social security with coverage under the current CSRS alone. It also describes typical benefits available to private sector employees covered by a pension plan.

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[45] Fifty-four percent of full-time wage and salary workers employed in the private sector do not participate in a pension system, and, therefore, social security benefits are the only survivor benefits available to them.

Table 4-8. COMPARISON OF SPOUSE AND SURVIVOR BENEFITS UNDER CIVIL SERVICE RETIREMENT, SOCIAL SECURITY AND TYPICAL PRIVATE PENSIONS

BENEFICIARY	CIVIL SERVICE RETIREMENT	SOCIAL SECURITY a/	PRIVATE PENSIONS
SPOUSES OF RETIREES - MARRIED			
1. Married spouse of a retired, covered worker.	1. No portion of the retiree's annuity is earmarked or computed as a spouse's share; no extra benefit available because the retiree is married.	1. A separate benefit is available for the spouse of a retiree equal to (a) [illegible] of the worker's benefit if spouse [illegible] age 65 or over. First eligibility at age 62, but benefit is actuarially reduced; (b) 50% of worker's benefit at any age if caring for child of worker (child under age 16 or disabled); subject to family maximum. b/	1. Same as CSRS.
SPOUSES OF RETIREES - DIVORCED			
2. Divorced spouse of a retired, covered worker; retiree unremarried.	2. If divorced before or after retirement, there is no automatic division of annuity. The annuity may be divided/administered by the Office of Personnel Management (OPM) only "if expressly provided for in the terms of any court decree of divorce, annulment, or legal separation, or the terms of any court-approved or court-ordered property settlement agreement incident to any court decree of divorce, annulment, or separation."	2. Spouse's benefit is payable if age 62 or over and had been married to worker for at least 10 years. The worker must be at least age 62 (benefit is not subject to family maximum); must be unmarried at the time of first eligibility for benefits. b/	2. Plan Administrators must comply with State court orders requiring that a portion of a retiree's annuity be paid to a former spouse.
3. Divorced spouse of a retired, covered worker; retiree remarried.	3. Same as 2.	3. Same as 2.	3. Same as 2.

WIDOWS AND WIDOWERS - MARRIED

4. Spouse of deceased retiree, married at retirement.	4(a). Spouse survivor conditions for eligibility: o Must be married at least nine months immediately before death unless death is accidental. o Annuitant automatically provides a full survivor annuity and takes a reduction unless he elects in writing to provide no survivor benefit or less than a full benefit; spouse must consent (effective 5/7/85) to a waiver of survivor benefits and form must be witnessed by third party. o If an annuitant was married at time of retirement but did not elect a survivor benefit at that time, he or she may elect a survivor benefit for a subsequent spouse within two years of remarriage. o Reduction formula for provision of full survivor benefit: -- 2.5% of first $3,600 per year, plus -- 10% of annuity above $3,600.	4(a). Spouse survivor conditions for eligibility: o Age 60 or over, or age 50 to 60 and completely disabled, or any age if caring for child (under age 16 or disabled) of deceased worker, was married to deceased worker at least 9 months (some exceptions), and is unmarried, unless remarriage occurred after 60.	4(a). Spouse survivor conditions for eligibility: o Must be designated as the beneficiary of the survivor benefit plan. o Annuitant automatically covered under a 50 percent joint-and-survivor plan unless he elects in writing to provide no survivor benefit or an alternative plan. Written, notarized spouse consent to waiver of survivor benefits is required (effective 1/1/85). o The plan may require that the spouse be married to the participant for at least one one year before the earlier of death or the starting date of the annuity. o Other actuarially equivalent benefit plans often available.
	4(b). Survivor benefit computation:	4(b). Survivor benefit computation:	4(b). Survivor benefit computation:

BENEFICIARY	CIVIL SERVICE RETIREMENT	SOCIAL SECURITY	PRIVATE PENSIONS
4. Spouse of deceased retiree, married at retirement (continued).	o 55% of life annuity (or of base amount elected by annuitant with notification to spouse.)	o Benefit=100% of worker's benefit if spouse is 65; reduced for age between 50-65. If surviving spouse is caring for child (under 16 or disabled) of deceased worker, benefit is 75% of deceased worker's benefit, subject to a family maximum. b/	o Minimum of 50 percent at the annuitant's actuarially reduced annuity, unless an alternative plan elected.
	o Survivor annuity discontinued if widow or widower remarries before age 55; restored if remarriage ends in death/divorce and if survivor elects this annuity over any other CSRS survivor annuity or survivor benefit from another retirement system for government employees excluding military survivors' benefits and if any lump sum withdrawn from the fund is repaid.	o Same as CSRS, except remarriage age is 60.	o Minimum benefit of a 50 percent joint-and-survivor may not be discontinued if survivor remarries; an alternative plan may be discontinued.
5. Spouse of deceased retiree, married after retirement.	5. Spouse survivor benefits--conditions for eligibility:	5. Spouse survivor benefits--conditions for eligibility:	5. Spouse survivor benefits--conditions for eligibility:
	o Annuitant must elect survivor coverage within 2 years of marriage or remarriage and must make a deposit to the CSRS to reflect an amount by which the retiree's annuity would have been reduced to provide a survivor's benefit since the commencing date of the annuity, plus 6 percent interest.	o Same as 4. o Same as 4.	o No provision for an election of a spouse survivor benefit when remarriage occurs after retirement.

• A spouse married to an annuitant after retirement is entitled to survivor annuity from that marriage only upon electing this annuity instead of any other survivor benefit to which he or she may be entitled from CSRS or any other retirement system for government employees (excluding military retirement survivor benefits).	
• Survivor benefits are stopped if widow or widower remarries before age 55; may be restored upon death or divorce of subsequent marriage. However, original survivor annuity is restored only if survivor elects this annuity instead of another CSRS survivor annuity or survivor annuity from another retirement system for Federal employees (except military retirement and survivor benefits) and if any lump sum withdrawn from the fund is repaid.	• Same as CSRS, except remarriage age is 60.

BENEFICIARY	CIVIL SERVICE RETIREMENT	SOCIAL SECURITY	PRIVATE PENSIONS
6. Survivor of formerly covered worker who dies before reaching eligibility for a retirement benefit.	6. Survivors of former Federal employees who die before reaching eligibility for a deferred annuity receive only a return of the employee's contributions. However, survivors of Members of Congress who were married when the Member left Congress are entitled to 55% of the Member's deferred annuity or a return of his contributions.	6. Same as 4(a) and 4(b). Worker must have earned enough quarters of coverage to be insured for survivors social security benefit.	6. Benefits payable to survivor of a vested worker dying before retirement, but need not be paid until deceased would have reached early retirement age.
7. Spouse of a deceased employee who dies before retirement.	7(a). Spouse survivor of an employee who dies before retirement—conditions for eligibility: o Spouse must have been marrried to employee for at least 9 months immediately before death unless death was accidental. o Employee must have at least 18 months' service. 7(b). Survivor benefit computation: o Survivor is eligible for 55% of "earned annuity," which is amount employee would have received had he been retired at the time of his death, but no less than the smaller of: -- 22% of employee's high-3 average pay, or	7(a). Spouse survivor benefits—conditions for eligibility: o Same as 6. 7(b). Survivor benefit computation: o Same as 4(b).	7(a). Spouse survivor benefits—conditions for eligibility: o Worker usually must have been vested; benefits not required to be paid until the deceased would have been the earliest retirement age specified by the plan (usually 55). 7(b). Survivor benefit computation: o An annuity is computed as if the deceased had retired the day befor death and elected a 50 % joint-and-survivor plan; early retirement reduction may or may not be applied. If employee lives to retirement, the cost of this protection may be charged against the retirement annuity.

	-- 55% of what the annuity would have been if the employee had continued working until age 60 at the same high-3 average salary. • This annuity is terminated if the survivor remarries before age 55; is restored if marriage ends in death or divorce and if survivor elects to receive this annuity rather than another CSRS survivor annuity or a survivor annuity under another retirement system for government employees employees (except military retirement survivor benefits), and if any lump sum withdrawn from the fund is repaid.	o Same as CSRS, except remarriage age is 60.	
WIDOWS AND WIDOWERS - DIVORCED			
8. Divorced spouse of a deceased retiree; retiree unremarried.	8. No spouse survivor benefit automatically available to any divorced spouse regardless of whether they were divorced before or after retirement, although it may be provided for through a court order issued prior to retirement or at the time of divorce, or may be provided for voluntarily by the retiree at the time of retirement or within two years after the marriage ends in divorce. (Retrospective benefits provided for a small class of divorced spouses.)	8. Survivor benefits available to a divorced spouse when the spouse is age 60 or over, or age 50 or over and completely disabled. Spouse must have been married to worker at least 10 years, and must be unmarried unless remarried after age for first eligibility for benefit. Also entitled to survivor benefits at any age if caring for his or he and the worker's child (under age 16 or disabled), in which case 10-year duration of marriage requirement does not apply. b/	8. A domestic relations order may assign benefits to a former spouse if the order does not require the plan to provide increased benefits as determined on the basis of actuarial value.
	• If a spouse survivor benefit is provided to more than one person, the total spouse survivor benefits paid cannot exceed 55 percent of the retiree's annuity.		
	• A former spouse or a current spouse may be named an "insurable interest" and the retiree takes a reduced annuity to provide an insurable interest annuity. The insurable interest employee annuity reduction formula is: — 10% and — 5% for each full 5 years the named individual is younger than deceased annuitant. — not to exceed a 40% reduction.	Benefits—same as (4b), except not subject to family maximum provisions.	

BENEFICIARY	CIVIL SERVICE RETIREMENT	SOCIAL SECURITY	PRIVATE PENSIONS
8. Divorced spouse of a deceased retiree; retiree unremarried (continued).	● The benefit to an insurable interest is 55% of the retiree's reduced annuity, paid after the death of the retiree.		
9. Divorced spouse of a deceased employee who died before retirement; deceased employee unremarried.	9. No survivor benefit is available automatically for former spouse, although an annuity is paid if expressly provided for in a court order issued before death.	9. Same as 8. Workers must have earned enough quarters of coverage to be insured for survivors social security benefits.	9. No provision for payment of a benefit.
10. Divorced spouse of deceased retiree; retiree remarried.	10. No benefit available automatically to former spouse, although an annuity is paid if expressly provided for in a court order, and the retiree took a reduced annuity. If a court has awarded all spouse survivor benefits to a former spouse, a remarried retiree may name a current spouse an "insurable interest" and take an additional reduction to provide that benefit.	10. Same as 8.	10. A domestic relations order may assign benefits to a former spouse if the order does not require the plan to provide increased benefits as determined on the basis of actuarial value.
DEPENDENT CHILDREN			
11. Children of a retiree.	11. No specifically designed benefits to the family of an annuitant.	11(a). Benefits to children of a retiree—conditions for eligibility:	11. Generally, no child survivor benefits are available.

		o Child must be under age 18, or under 19 if full-time student in elementary or secondary school, or any age if disabled before age 22; child must be unmarried. 11(b). Child survivor benefit computation: o Benefit=50% of the worker's basic benefit, subject to family maximum.	
12. Children of a deceased retiree.	12(a). Children must be unmarried, under age 18 unless in school, then under age 22; or must be incapable of self-support. o If deceased annuitant has surviving spouse, each child gets the smallest of: -- 60% of the average pay of annuitant, divided by number of children, or -- $2,711 (indexed annually to the Consumer Price Index (CPI)), or, -- $8,133 (indexed annually to the CPI), divided by the number of children.	12(a). Same as 11(a).	12(a). Generally, no child survivor benefits are available.
	12(b). Child survivor benefit computation: o If the deceased annuitant has no surviving spouse eligible for a spouse survivor annuity, each child gets the smallest of:	12(b). Child survivor benefit computation: o Same as 11(b), except benefit is 75% of worker's benefit.	

BENEFICIARY	CIVIL SERVICE RETIREMENT	SOCIAL SECURITY	PRIVATE PENSIONS
12. Children of a deceased retiree (continued).	-- 75% of the average pay of annuitant, divided by number of children, or -- $3,255 (indexed annually to the CPI), or -- $9,765 (indexed annually to the CPI), divided by the number of children. Note: Upon the death of a surviving spouse or termination of an annuity to a child, the annuities of other children are recomputed as if the spouse or child had not survived the employee or annuitant. • A child exceeding the age limits for child survivor benefits may be named as an insurable interest (see item 8).		
13. Children of deceased employee who died before retirement.	13. Same as benefits of deceased annuitant. Note: Upon the death of a surviving spouse or termination of an annuity to a child, the annuities of other children are recomputed as if the spouse or child had not survived the employee or annuitant.	13. Same as 12. Worker must have earned enough quarters of coverage to be insured for social security survivors benefits.	13. Generally, no child survivor benefits are available.

OTHER BENEFICIARIES

14. Beneficiaries of lump-sum payments.	14. If Federal employee dies: -- with less than 18 months service, or -- with no survivor who would be eligible for a survivor annuity, or -- after having left Federal service, but without withdrawing contributions, and if an annuitant dies without having received in annuities the full amount of his contributions, then any amount of the contributions made into the fund that has not been paid out as an annuity shall be paid to the person or persons in the following order: o First, to the beneficiary or beneficiaries designated by the employee or Member in a signed and witnessed writing received in OPM before his death. For this purpose, a designation, change or cancellation of beneficiary in a will or other document not so executed and filed has no force or effect. o Second, to the widow or widower of the employee or Member. o Third, to the child or children of the employee or Member or descendants of deceased children by representation.	14. $255 paid to (1) spouse living with worker at time of death, or (2) spouse eligible for widow(er)'s benefits in month of death (excluding divorced spouse(s)), or (3) children who are eligible for benefits in month of death.	14. Lump sums sometimes paid if deceased worker or retiree was ineligible to elect survivor coverrge or had waived coverage. All contributory plans also return the employee's contributions.

BENEFICIARY	CIVIL SERVICE RETIREMENT	SOCIAL SECURITY	PRIVATE PENSIONS
14. Beneficiaries of lump-sum payments continued).	o Fourth, to the parents of the employee or Member or to the survivor of the parents. o Fifth, to the duly appointed executor or administrator of the estate of the employee or Member. o Sixth, to such other next-of-kin of the employee or Member as OPM determines to be entitled under the laws of the domicile of the employee or Member on the date of his death.		
15. Beneficiaries of any unpaid accrued annuity.	15. Any annuity accrued and unpaid on the death of a survivor is to be paid: o First, to the executor or administrator of the estate of the survivor annuitant, and, o Second, after 30 days after the death of the survivor annuitant, to the next-of-kin of the survivor as OPM determines to be entitled under the laws of the domicile of the survivor annuitant on the date of his death.	15. No provision for return of social security taxes paid should there be no benefits payable to a worker or survivors.	15. Paid to the estate of the deceased or named beneficiary.

16. Dependent parents	None	16. Parent age of 62 or over who received at least one-half support from the worker receives 82.5% of the PIA. If there are two parents each gets 75% of the PIA.	16. Generally, benefits to dependent parents are not provided.
17. Grandchildren	None	17. A grandchild living with, and receiving one-half support from, the worker, before he retired, became disabled or died is eligible for child's benefits.	17. Generally, benefits to grandchildren are not payable.

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a/ Under Social Security provisions, any recipient under age 70 is subject to an earnings test. Benefits are reduced by 50% of all earnings in excess of--in 1984--$5,160 per year (if under age 65) or $6,960 (age 65 through age 69).

b/ The spouse's benefit is reduced by: the amount of any social security to which the spouse is entitled, based on spouse's earnings; 2/3 of any government pension derived from his or her own work not covered by social security; or, if under age 70, earnings from work beyond an exempt amount.

1. Basic survivor coverage

As table 4-8 shows, social security, the current CSRS and private pensions all provide survivor benefits to the spouses of deceased retirees. In addition, all three systems pay benefits to survivors of workers who die before retirement, although the eligibility criteria for preretirement death benefits are quite different among these three systems. For most private sector workers, social security provides the fundamental survivor protection. However, private pensions often provide benefits *in addition* to social security. These plans are usually explicitly integrated, with the pension formula taking social security into account.

2. Social security compared with the current CSRS and private pensions

Social security, private pensions and the current CSRS were designed to meet different objectives, and therefore they provide somewhat different spouse and survivor coverage.

Table 4-9 summarizes the categories of dependents and survivors for whom the current CSRS and most private pensions provide benefits, but for whom social security does not provide coverage; it also shows the categories of dependents and survivors covered by social security but not covered by the current CSRS or private plans.

Table 4-9.—Current CSRS and Private Pension Coverage of Dependents and Survivors Compared to Social Security

Groups automatically covered by current CSRS/private plans but not by social security:	Groups automatically covered by social security but not by the current CSRS:
All widow(er)s under age 70 with earnings above a certain amount;.	Married spouses age 62 and over of living retirees;
Widow(er)s under age 60 (age 62 for spouses), with no children under age 16;.	Married spouses any age caring for children under age 16 of retired, deceased or disabled workers;
Widow(er)s with and without children under age 16 with earnings above a certain amount; and.	Divorced spouses (married 10 or more years) age 62 and over of living retirees or workers over age 62; or any age if caring for worker's children under age 16;
College student child survivors of deceased workers and retirees (up to age 22). (Not covered under private plans.).	Divorced widow(er)s (married 10 or more years) age 60 and over (or age 50 and disabled) of employees and retirees; and
	Children under age 18 of retired and disabled workers.

Social security's family insurance features are demonstrated by the requirement that there be dependent children in the family as a condition of eligibility for certain spouses of retirees and widows and widowers. Specifically, widows and widowers who have not reached 60 and who have no children under 16 cannot draw social security survivor benefits (benefits are payable to surviving children up to age 18, however). Under social security, divorced spouses and survivors (married at least 10 years) *automatically* receive benefits. Recent legislation pertaining to private pensions and the current CSRS allows benefits to divorced spouses only if there is a qualified domestic relations order specifying that an annuity be divided or a survivor benefit provided. Coverage under private pension plans generally resembles that of the current CSRS.

Social security also does not pay benefits to people with earnings above a specified amount even though they meet other eligibility requirements of age, service, etc. All social security benefits, including those to retirees, their spouses and survivors and their children, are subject to the earnings test (unless the recipient is over age 70). Recipients under age 70 have their benefits reduced by 50 percent of all earnings over a certain level, regardless of the presence of young children, with all benefits phasing out when yearly earnings exceed twice the amount of yearly benefits in excess of the base amount. In comparison, the current CSRS and private sector plans do not reduce survivor benefits because the survivor has earnings. Rather, these plans supplement earned income of survivors.

Unlike most private pensions and the current CSRS, social security benefits are paid to *spouses* of retirees (including divorced spouses married at least 10 years to the worker) beginning at age 65, (or age 62 for reduced spouse benefits) as an entitlement that is paid in addition to the benefit earned by the retired worker. Therefore spouses (and divorced spouses) of new Federal workers will be entitled to these benefits. The additional spouse benefit is based on the premise that a couple requires more income than a single person, although not twice as much. Thus, at age 65, the spouse of a retiree receives a separate benefit equal to 50 percent of the retiree's benefit, so that a couple's social security income is 1½ times greater than that of a single retiree with an identical work history.[46] This entitlement to a social security spouse benefit continues after divorce if the marriage lasted at least 10 years, whether the divorce occurs before or after retirement. These social security benefits to spouses and divorced spouses will be available to new Federal workers covered under that program.

The current CSRS and private pensions provide no spouse benefit entitlement in addition to benefits to the retiree. Furthermore, the annuity of Federal and private retirees is reduced when spouse survivor coverage is elected, although under CSRS the reduction only pays for about one-half of the cost of the survivor benefit. Thus, a Federal retiree electing survivor coverage receives a *smaller* benefit than a single retiree with the same Federal work history. Similarly, private pensions usually require married annuitants to accept reduced pensions to provide survivor coverage, and the pension to the retiree is actuarially reduced to finance the full cost of survivor coverage.

The issue of spouse and survivor benefits to divorced spouses of workers covered by the CSRS or by a private pension plan has been controversial. Unlike social security, neither the current CSRS nor private pensions pay spouse benefits and neither automatically pays benefits to divorced spouses. However, it has been argued by many that marriage is an economic partnership, and spouses and surviving spouses, whether or not divorced from the covered worker, should be entitled to some of the benefits earned during the marriage. During the 98th Congress, both the CSRS and ERISA were amended to provide benefits to divorced spouses under certain circumstances. P.L. 98-615 amended the CSRS to require that spouses of Federal workers must *consent* to a waiver of survivor benefits and to require that the Office of Personnel Management (OPM), the agency responsible for administration of the Federal retirement system, honor court orders granting survivor benefits to divorced spouses, including division of one survivor benefit between a current and a former spouse. (OPM is also required to honor court orders to make a direct payment of a portion of a Federal retiree's annuity to a former spouse.) P.L. 98-397 amended ERISA to require spouse consent to waiver of survivor benefits under private pension plans and permits division of pensions in divorce settlements. Also, administrators of private pension plans are required to comply with qualified domestic relations orders about provision of survivor benefits. However, the important differences between social security and these new laws pertaining to pension and survivor benefits to divorced spouses are (1) they do not provide automatic benefits to divorced spouses, and (2) they provide for the *division of one annutity,* not for additional spouse retirement or survivor annuities. These benefits are not automatic because they must be awarded by a court.

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[46] All social security spouse benefits are subject to an earnings test. For spouses with substantial earnings, no benefits are payable until age 70. Also a spouse may receive a retirement benefit based on his or her own earnings record. The earned benefit is subtracted from the spouse benefit.

Benefits are available to children under age 18 of deceased workers and retirees under the current CSRS and under social security for new Federal workers. Private pension plans seldom provide benefits to children of any age. Recent changes made in social security eliminated benefits to children between ages 18 and 22 in college or other postsecondary school, but the current CSRS continues to pay survivor benefits to these groups. Social security students' benefits are provided only to children in elementary or secondary school under age 19, and are not paid to any postsecondary school students.

3. Categories of spouses and survivors not covered by CSRS, private pensions or social security

Because of the categorical restrictions on social security benefits to family members and because typical private pensions (like the current CSRS) do not automatically provide any family benefits except to widowed spouses, certain categories of survivors are ineligible for benefits from social security, private plans and the current CSRS. These categories of people do not qualify for social security survivor benefits because:

- they do not meet the age criteria,
- they have no children under 16,
- they were divorced from the worker after less than 10 years of marriage,
- they were married to the deceased worker or retiree for less than nine months at the time of death, and
- they have earnings of their own in excess of the specified maximum.

In addition, these people may be excluded from any survivor benefits under a private pension plan or from CSRS because:

- they were divorced from the worker and the divorce settlement did not specify any provision of survivor benefits,
- survivor benefits were waived by the worker (until January 1, 1985 for private plans; May 1985 for CSRS) or they consented to a waiver of survivor benefits (after January 1, 1985 for private plans or May 1985 for CSRS),
- they were widowed before their spouse became vested in a private retirement plan (or before their spouse had less than 18 months of service if a Federal worker),
- they were widowed after their spouse was vested in a private plan, but before he or she had reached early retirement age (only up to August 23, 1984),
- they were widowed before their spouse had begun drawing retirement benefits from a former private employer (until Janury 1, 1985 only), or
- they were widowed before their spouse had begun drawing a CSRS deferred annuity.

While social security entitles some categories of family members and survivors to benefits, others are excluded. Widows and widowers can be excluded because of the presumption that they are young enough to work and are not needed in the home to care for young children. For those married less than nine months, it is difficult to argue that economic dependency is established in such a short period, and those with substantial earnings of their own can support themselves and are not in need of social insurance.

Private pension plans and the current CSRS do not cover certain categories of people because those plans are staff retirement systems and annuities are based only on the relationship between the employee and the employer, not on family or marital status. While in cases of divorce, courts may direct that there be a division of a private annuity or of a CSRS annuity, there is no entitlement to such benefits under those plans.

Under the current CSRS, Federal employees who leave government employment before eligibility for retirement may leave their contributions in the retirement fund, and, at the age of 62, begin to draw a "deferred annuity." If such a person dies after leaving Federal employment, but before age 62, no survivor annuity is payable and the worker's contributions left in the fund are refunded to the survivor. Thus, these survivors are excluded from a survivor annuity. In contrast, under private plans, the Retirement Equity Act of 1984 requires a spouse survivor benefit to be paid to the survivor of any vested worker who had a nonforfeitable right to an accrued benefit, even if the deceased no longer worked for that employer.

C. DESIGN FEATURES AND ALTERNATIVES FOR SURVIVOR BENEFITS

Coverage of Federal employees under social security raises a number of issues about the design of survivor benefits under a redesigned civil service pension system. This section presents the important features of a survivor plan and alternatives for a new Federal retirement system. Table 4-10 shows design alternatives for postretirement survivor benefits and for preretirement death benefits and is followed by a discussion of the alternatives. This discussion of design issues is followed by cost estimates of alternative survivor benefit features.

TABLE 4-10.—DESIGN FEATURES AND ALTERNATIVE TREATMENTS FOR SURVIVOR BENEFITS

Design features	Alternatives
A. Postretirement survivor benefits:	
1. Financing	a. Current CSRS: partially employer-financed. b. 50 percent joint-and-survivors; fully employee-financed. c. Entitlement for all spouse; full employer financing.
2. Social security integration	a. Employee pension offset before computation of survivor benefit. b. Survivor benefit computed on pre-offset pension; social security survivor benefit offset 100 percent against CSRS survivor benefit. c. Compute survivor benefit as 55 percent of both the pension and social security; social security survivor benefit offset 100 percent against the CSRS survivor benefit.
3. Spouse consent	a. Current CSRS system; spouse consent to waiver. b. Mandatory survivor coverage for spouses of all workers married at the time of retirement.
4. Survivor benefits to divorced spouses	a. Current CSRS system: under State court order only. b. Presumption of entitlement to proration of survivor benefits, subject to state court review. c. Automatic entitlement of full benefits to all spouses and former spouses (if married 10 years).
5. Retirement benefits to divorced spouses	a. Current CSRS system: under State court order only. b. Court order: Presumption of entitlement to pro-ration of CSRS pension subject to State court review.
6. Children's benefits	a. Current CSRS: least of 3 specified amounts with age limits. b. Current prevailing private practice: social security only.
B. Preretirement death benefits:	
1. Date of eligibility	a. Current CSRS: 18 months service requirement. b. At vesting for pension. c. Current prevailing private practice: at early retirement age.
2. Availability of a survivor annuity to spouse survivor of former employee awaiting a deferred annuity.	a. Current CSRS system: survivor annuity payable to spouses of former Members of Congress only. b. Allow choice of returned contributions or an annuity.
3. Children's benefits	a. Current CSRS: least of 3 specified amounts with age limits. b. Current prevailing private practice: social security only.

1. Postretirement survivor benefits

a. Financing.—Social security is the nation's primary social insurance program and provides family and survivor coverage at no additional cost to the retiree. The cost of family and survivor benefits is spread among all participants in the program. The current CSRS, like most staff retirement plans, provides no such automatic coverage, but allows the retiring worker, in effect, to purchase survivor coverage. If coverage is purchased, the current civil service system uses a two-tier arithmetic reduction in the annuity of a retired worker. This reduction is currently less than a full actuarial reduction that would fully finance the survivor benefits from the retired worker's pension. Thus, at the present time about one-half of the cost of survivor coverage under the current CSRS is paid by the employer—the Federal Government.

Private pension plans and State pension plans permit retiring workers to elect or reject a spouse survivor benefit, but they typically require the retiree to pay the *full cost* of a survivor annuity through a joint-and-survivor plan with a full actuarial reduction in the annuity. The issue of financing survivor benefits under a new civil service system is whether spouse survivor benefits should be an entitlement, with the cost spread over all participants in the system; whether it should be a joint-and-survivor plan, conforming with private and State pension plan practices; or whether it should be like the current CSRS with partial employer subsidization.

There are certain advantages to providing benefits as an automatic entitlement for all survivors. One advantage is that retirees would not have to decide whether to choose survivor coverage—it would be provided automatically. In addition, spouse entitlement and full employer-financing could also extend benefits to divorced spouses, with the system picking up any additional cost. This entitlement could be either (1) entitlement of any and all spouses, including former spouses, to a full survivor benefit, or (2) entitlement of all spouses, including former spouses, to a prorated share of one survivor benefit, with a rule about minimum duration of the marriage. Another advantage would be that there would be no reduction to the annuity of a married retiree, and thus married couples would not receive less than unmarried retirees. A further advantage is that because survivor coverage would cost the retiree nothing, there would be no finanical incentive *not* to provide it. According to a Department of Labor study, only 30 percent of males participating in private pension plans opt for a joint-and-survivor plan, and it has been argued that the cost of a fully actuarially reduced pension is a deterrent to taking a survivor plan option.

Entitlement of current and divorced spouses to a full survivor benefit would protect divorced widows and widowers against gaps in social security coverage, i.e., when they are too young (under age 60) for social security surviving divorced spouse benefits and have no children under age 16. However, providing a full survivor benefit to current as well as former spouses would add to the cost of the system and would create a new group with an entitled claim to puplic resources. The alternative—to prorate one survivor benefit among the current and former spouses—could provide survivor benefits so small that the objective of protecting former spouses against impoverishment would not be served. Proration also means that when a worker or retiree remarries, a former spouse has a preemptive right to a survivor annuity over the current spouse. Some minimal income would be provided to each survivor, however, with no additional cost to the system since the total benefit would be unchanged.

A joint-and-survivor plan, on the other hand, does not increase the cost of a pension system because it is fully employee-financed through an actuarial reduction in the retiree's annuity. The new Federal retirement system could be established to provide one joint-and-survivor benefit level, such as the 50 percent joint-and-survivor annuity minimum under ERISA for private plans. Alternatively, the retiring worker could be given the choice of the level of survivor benefits, typical of State and private sector retirement plans. Allowing employee choice would provide flexibility in the system and would accommodate differing financial, age and health situations of retirees. As another alternative, flexibility could be provided by allowing retirees to purchase survivor coverage in addition to a basic plan through an acturial reduction to his or her annuity that would fully pay for the additional benefit.

Under plans requiring full actuarial reductions to provide survivor annuities and under the current CSRS survivor plan that requires a reduction that partially covers the cost of a survivor benefit, a married couple receives less after retirement than a similarly situated single individual. Coverage under social security may offset this reduction because of the additional spouse benefit provided under that program at age 62. The primary feature of a joint-and-survivor plan, however, is that there is no cost to the system of providing a survivor benefit.

b. Social security integration.—Integrated pension systems, typical in the private sector, subtract some social security benefits so that the combination of the pension and social security approximately equals the target replacement rate of preretirement earnings established by the plan.[47] For example, a new civil service pension system might offset 50 percent of the social security Primary Insurance Amount (PIA), a typical offset plan used in private pensions. A retired Federal worker would receive benefits from both the pension plan and social security, with half the social security PIA subtracted from the full pension amount to determine the payable amount of the pension. The survivor benefit would be computed as a percentage of the pension *after the social security offset.* In some instances, a survivor benefit calculated from an offset pension will be less generous than one available from the current CSRS because there is no reduction in the current CSRS pension for social security. The reason for a social security offset nominally is to take account of retirement income payable from social security. However, because of the categorical restrictions on payment of social security survivor benefits, an issue in designing a new Federal retirement plan is whether it is appropriate to calculate a survivor benefit from a pension that has been reduced to account for social security unless social security benefits actually are payable to the survivors.

Typical private pension plans provide no additional compensation for survivors to whom social security survivors benefits are not payable, even though their benefit formula includes a social security offset. From the standpoint of comparability with benefits available to non-Federal workers, there is no reason to make such compensation as part of a new Federal system. It is argued that the social security rules are established Federal policy, and, therefore, it is not incumbent upon the pension plan to compensate for social security benefits that are not payable to certain categories of people. On the other hand, to fail to do so in a new pension system would reduce some survivor benefits below those provided to those current workers who will remain under the existing CSRS rules. For those survivors who have young children or who are old enough to qualify for social security survivor benefits, benefits from both programs would be available, although there would still be large swings in the income payable to these survivors after their children reach age 16 but before the survivor reaches age 60.

To resolve these issues, survivor benefits could be calculated from the full pension without the social security offset. To avoid what may be perceived as duplication of benefits for those survivors who do qualify for both a survivor benefit under a new system and social security benefits, 100 percent of the family social security benefit, when *payable*, could be subtracted from the new systems's survivor benefit for the family. When the social security benefit is greater than the survivor pension benefit, only social security would be paid; if the survivor subsequently became ineligible for social security, as happens to a nonaged widow when her youngest child reaches 16, the survivor benefit would be calculated from the full pension, with no offset.

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[47] This target replacement is established for workers with average earnings and full careers.

There is yet another reason why survivor benefits under a new integrated plan may be smaller than those available for survivors of workers covered under the current CSRS. Under a new Federal system that costs the same as the current CSRS, the pension system may have a smaller accrual rate than the current CSRS. Using the example of a 50 percent offset plan, the accrual rate that would produce a program costing nearly the same as the current CSRS would be about 1.5 percent. In comparision, the current accrual rate is a three-step computation, with 1.5 percent accrued for the first five years of service, 1.75 percent for the second five years, and 2.0 percent for all years over 10. Accordingly, survivor benefits may be lower compared to the current CSRS.

Different categories of survivors may be affected differently by a reduction in the accrual rate of the pension plan. First, under the new plan, widows and widowers who are not eligible for social security may receive greatly reduced benefits compared with survivors eligible for benefits under the current CSRS. Second, for lower wage workers, any offset plan may provide proportionately more retirement income from social security than from the pension, whereas, workers who retire at higher wage levels may receive proportionately more from the pension than from social security. Therefore, when social security benefits are offset but not payable, the survivors of lower wage retirees will have less income replaced than survivors of high-wage workers. Third, survivors not affected by this issue are those who receive the minimum benefit of 22 percent of the worker's high-3 average salary (if the new plan includes this kind of minimum benefit). The pension formula is not used in that calculation and, thus, there is no effect of the lower accrual rate.

To make survivor benefits from a new Federal system more comparable to those provided under the current CSRS, survivor benefits could be computed as a proportion of the pension *plus social security*, rather than as a proportion of the pension alone. Under an offset plan that preserves some of the tilt in social security benefits, this procedure would produce a different distribution of survivor benefits from the current system, but it would follow the distribution of retirement income to retirees established under the new plan. If this approach were adopted, however, computation of the survivor benefit as a proportion of the pension benefit plus social security should be computed from the pension *before the offset* for social security in order to replicate the current system of basing the survivor benefit on the full amount to retirement income provided under the retirement plan. The resulting survivor benefit could then be fully offset by any social security survivor benefits payable.

The major drawback to these plans that would require offsetting survivor benefits, however, is that ERISA prohibits offsetting 100 percent of survivor benefits. While ERISA does not pertain to the Federal pension system, it may be desirable to conform with the restrictions it places on private plans. If so, these survivor benefits could be established through a special insurance program that would compute benefits and offset the payable social security amounts in the same way as described above, but as an annuity from an insurance fund.

The current CSRS provides a minimum survivor benefit to protect the survivors of employees who die with short service. This minimum benefit provides greater benefits than those under the regular formula for the first 22 years of service. In such cases, an arbitrary pension is attributed to the deceased worker equal to 40 percent of his or her high-3 years average salary. The survivor benefit is then calculated as 55 percent of that amount, or 22 percent of the deceased worker's average salary (55 percent of 40 percent), or the pension calculated with years of service projected to age 60, whichever is least. Under the current law, the effect of the minimum is that the spouse survivor of someone who dies with, say, five years of service receives the same survivor annuity as the survivor of someone who dies with, say, 20 years of service (assuming both workers had the same final high-3 average salary and joined the government at a fairly young age). In all offset plans the amount of the social security deducted from the pension rises with years of service. Hence, an assumed minimum pension for a worker who dies after 20 years of service would be reduced by a greater amount than that of the worker who does after five years of service. If the survivor benefit is calculated as 55 percent of the pension after the offset, the survivor of the longer term worker would receive *less than* the survivor of the shorter term worker. Below (table 4-11) is an example of benefits payable to the survivors of workers with high-3 average salaries of $38,000, but one with five years and one with 20 years of service. The social security PIAs are assumed to be $8,400 in both cases, as they would be in a mature social security system that will pertain to the new Federal workers who enter government service after January 1. 1984. The minimum assumed pension is $15,200 (40 percent of $38,000). The social security integration plan used in this example is a 50 percent offset for a full 40-year career. Therefore the offset is 1.25 percent of the PIA for every year of Federal service (.0125 x 40 = .50).

TABLE 4-11.—BENEFITS PAYABLE TO SURVIVORS OF 5-YEAR AND 20-YEAR WORKERS

Benefit	5-year worker	20-year worker
Assumed minimum pension	$15,200	$15,200
Social security offset	−525 (.0125×5×$8,400)	−2,100 (.0125×20×$8,400)
Offset pension	14,675	13,100
Survivor proportion	×.55	×.55
Survivor annuity	8,071	7,205

This inequity can be resolved by (1) eliminating the minimum benefit, or (2) by computing the survivor benefit from the pension before the offset, and then offsetting social security survivor benefits payable against the survivor pension, or (3) by basing the proration on the actual years of coverage assumed by the Social Security Administration in the computation of survivor benefits, i.e., each year after age 21 to the time of death.

c. Child survivor benefits.—Social security and the current CSRS provide child survivor benefits to children of deceased Federal workers and retirees. Social security also pays benefits to dependent children of retired workers, although neither the CSRS nor private pensions provide children's benefits to dependent children of living retirees. Because social security child survivor benefits are a proportion of the deceased worker's social security primary insurance amount, there may be some cases in which the surviving children of workers covered by the new retirement system would receive smaller benefits than those available to the survivors of workers covered under the current CSRS. This situation could occur if no child survivor benefits are provided under a redesigned system and if a worker dies after having accrued a small PIA.

The age requirements for child survivor benefits differ under social security and under the current CSRS. Under social security, benefits are payable up to age 18 (age 19 if a full-time student in elementary or secondary school), whereas current CSRS child survivor benefits are payable up to age 18 or up to age 22 if in school, including postsecondary school. If no supplemental child survivor benefits are provided as part of the new pension system, the social security rules would prevail. If supplemental benefits are provided, however, the age limits could be coordinated.

d. Spouse consent.—Until passage of P.L. 98-615, the Civil Service Retirement Spouse Equity Act of 1984, the ultimate decision to provide survivor coverage for a spouse rested with the worker at the time of retirement, although a married retiree had to take action *to prevent* survivor coverage from going into effect. However, the spouse had simply to sign the retirement application stating that he or she has been *notified* of that decision. There was no requirement that the spouse agree with the decision. Legislation recently enacted changes this as of May 7, 1985. After that time spouse *consent* is required if survivor benefits are waived.[48]

e. Survivor benefits to divorced spouse.—The issue of income adequacy and equity later in life for divorced spouses has drawn attention over the past several years and has focused on women sometimes characterized as "displaced homemakers" (those with little or no work experience, who have spent most of their adult lives taking care of home and family). When divorce occurs, these women may be left with little support and few skills with which to compete in the labor market. Some, whose former spouses worked in employment covered by social security, may qualify for parent benefits (if their children are young enough), or for social security spouse benefits (if they and their ex-husbands are old enough). Others are caught in between.

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[48] Section 205(b)(2) of H.R. 4280, the Retirement Equity Act of 1984, also requires spouse consent for waiver of survivor benefits under private pensions.

During the past decade Congress has made major changes in Federal retirement law to provide greater protection for divorced spouses. Social security amendments enacted in 1965 provided spouse and survivor benefits to divorced spouses married 20 years or more. The marriage requirement was reduced to 10 years in 1977.

Other changes have been made in benefits available under Federal retirement programs *for workers not covered by social security.* Public Law 95-366, enacted in 1978, permits direct payment by the Office of Personnel Management of court-ordered payments to divorced spouses from civil service retirement benefits, although courts could *not* order direct payments of survivor benefits. In 1980, P.L. 96-465 permitted divorced spouses of Foreign Service personnel to receive a pro rata share of retirement annuity and survivor benefits, subject to review, modification, or rejection by the State court overseeing the divorce. In 1982, Congress extended those same benefits to former spouses of CIA personnel through Public Law 97-269. Also in 1982, the Uniformed Services Former Spouse Protection Act allowed courts to divide a military pension as part of property settlements in cases of divorce, and allowed retiring military personnel to designate a former spouse as the beneficiary of a military retirement spouse survivor annuity. Public Law 98-615 addressed the issue of survivor benefits for divorced spouse of Federal workers by permitting domestic relations courts to order OPM to reduce a retiree's annuity in order to provide survivor benefits to former spouses and to prorate a survivor benefit between a former and a current spouse.[49]

While coverage of new Federal workers under social security will provide survivors benefits to some categories of divorced spouses for whom no benefits are currently available, non-disabled divorced widows and widowers under age 60 without children under age 16 are ineligible under social security. In designing a new Federal system, one alternative would be to provide full survivor coverage for all divorced spouses as an entitlement, with a requirement that the marriage have lasted a specified amount of time. These benefits could be offset by any social security benefits payable to prevent duplication of benefits to divorced spouses who might become entitled to benefits under both programs. This kind of benefit is not available under private pension plans.

Entitlement of divorced spouses to a full civil service survivor benefit under a redesigned plan (offset by any social security benefits payable) would increase the cost of survivor benefits. As an alternative to this approach, former spouses could be automatically entitled to a prorated share of one survivor benefit if married at least 10 years, subject to State court review and modification. This differs from the recently enacted provision, in that it is presumptive entitlement that would go into effect unless a court acted to the contrary.

f. Retirement benefits to divorced spouses.—It is sometimes claimed that a retirement pension is property jointly owned by a couple and therefore it is divisible as part of a property settlement.

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[49] It has always been permissible to name a former spouse as an "insurable interest."

It is argued that a marriage is an economic partnership and that nonworking wives make a significant contribution toward the ability of workers to earn a salary, including deferred compensation in the form of a pension. According to this argument, retirement credits earned during the marriage should be shared upon divorce. The Uniformed Services Former Spouse Protection Act addressed this issue directly. It provides that a military pension is joint property and is divisible in a property settlement.

While some divorced spouses of Federal workers who will be covered under social security will be eligible for social security spouse benefits, others will be categorically ineligible for that coverage, at least temporarily, until they are age 62 (or 60 if their ex-spouses die). The important choice is whether a new plan should go farther than the current law which permits division of a pension if there is a qualified domestic relations order to do so. The alternative would be to presume entitlement to proration of the Federal annuity subject to State court review.

2. Preretirement survivor benefits

a. Date of eligibility.—Preretirement death benefits can be provided either as a survivor annuity or life insurance or both. The current CSRS pays survivor annuities to the widows and widowers of Federal workers who die while still employed with at least 18 months of Federal service. These annuities may be small for workers who die with short service, paying 22 percent of the worker's high-3 years average salary.

As an alternative to the current CSRS practice of paying a spouse survivor benefit immediately if the worker had at least 18 months of service, a new system could provide the survivor annuity if the deceased worker had been vested, as is done in private and State plans. If vesting is the eligibility requirement the benefit could be paid immediately or not until the month in which the deceased workers would have reached the earliest retirement age specified in the plan.

State plans typically pay survivor annuities if the worker was vested in the pension plan. Under private sector pension plans, the Retirement Equity Act of 1984 (P.L. 98-397) specifies that a benefit must be paid from a private plan if the worker was vested with a nonforfeitable pension. Social security benefits are payable to survivors if the worker had at least 18 months in covered employment and if there are young children. If there are no children under age 16, and the widow or widower is not 60 or age 50–59 and disabled, no social security is payable; likewise, social security benefits are reduced if the survivor has earnings in excess of the social security earnings limits.

Government life insurance is also available *at employee option*. Federal workers must pay two-thirds of the cost of the minimum coverage, which is two times pay for those up to age 35, and is reduced gradually to one times final pay rounded up to the next thousand dollars, plus $2,000. In cases of accidental death, when death is externally caused, the payment is doubled. Coverage of Federal workers under this life insurance program is automatic unless the worker waives coverage in writing. Workers may elect life insurance coverage beyond the basic amount, but additional coverage, up to five times salary, is fully paid for by the employee. Spouse and children's coverage may also be purchased, at $5,000 and $2,500 respectively. According to recently published data, 91 percent of all Federal workers participate in the government-sponsored program.[50]

Unlike most group life insurance plans provided by private employers, until December 31, 1989, Federal employees retiring before age 65 retain full coverage, at no cost, up to 65. Most private group plans either cease coverage or reduce coverage rapidly upon retirement. At age 65, the government insurance declines by two percent a month to a minimum of 25 percent of the amount in force at retirement. Retiring employees can elect, at an extra cost, to reduce or eliminate the reduction in coverage at age 65. However, as of January 1, 1990, all retirees under age 65 will have life insurance premiums withheld from their annuities to retain full coverage until age 65.

Employer-sponsored group life insurance in private sector retirement systems is typically more generous than that provided by the government. However, again, this coverage is usually reduced or ends at retirement. This life insurance is paid for by employers at no cost to employees and 100 percent of the employees of firms with group insurance plans are automatically covered.

Table 4-12 shows the cumulative distribution of the multiples of final salary paid by private firms that provide group life insurance based on a uniform earnings multiple. Out of 854 firms surveyed by Hay-Huggins, 634 reported that they provide group life insurance based on an earnings multiple. In addition, 405 of the private firms surveyed place dollar limits on the amount of life insurance payable. The average limit was about $200,000.

Table 4-12.—Basic Group Life Amounts Based on Uniform Earnings Multiple

Percent of final pay:	*Cumulative percent distribution*
Less than 100	1
100	26
101 to 149	27
150	41
151 to 199	41
200	88
201 to 249	88
250	93
251 to 299	93
300	99
Greater than 300	100
Total number of firms	634

Source: Hay-Huggins, Noncash Compensation Comparison, 1983. Table 2-14.

If the new Federal retirement system were to be patterned after private sector practice, it would be necessary to increase life insurance coverage for Federal workers, with the Federal Government paying for life insurance coverage of 1½ to 2 times salary. Some argue that a large, lump-sum insurance payment is more useful for paying off a mortgage or providing a college education than a small monthly annuity for life. A more paternalistic view is that large lump-sums of money can be easily and quickly wasted.

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[50] One hundred percent of postal workers participate, since basic coverage is fully paid for by the postal service.

b. Benefits to survivors of former Federal workers.—When workers who have left Federal employment die before becoming eligible for a deferred annuity (age 62), no survivor annuity is available under the current CSRS. Until the recent passage of the Retirement Equity Act of 1984, private sector plans did not pay survivor benefits, either, if the worker left an employer but died before becoming eligible for a deferred annuity. However, the new law requires that a benefit be paid if the deceased worker were vested in the plan and had a nonforfeitable right to any portion of an annuity, although private plans are not required to begin payments to the survivor until the time at which the deceased would have reached the earliest retirement age specified in the plan.

An alternative to the current CSRS is to allow all survivors of workers who die before drawing a deferred annuity to elect either a lump-sum return of the contributions that have been left in the retirement fund or, adopting the new rules applicable to private pensions, to provide a survivor annuity based on the annuity that would have been payable to the deceased at the time of death.

D. COST ANALYSIS OF ALTERNATIVES FOR SURVIVOR PLAN DESIGN FEATURES

CSRS benefits to survivors of deceased Federal workers and deceased Federal retirees currently cost about 4.0 percent of payroll. The entry age normal cost of all CSRS benefits for workers entering Federal employment in 1985 is about 32.2 percent of payroll.[51] Therefore, survivor benefits account for about 12 percent of the cost of the current retirement system. The survivors include spouses of deceased retirees, spouses of deceased workers, spouses of workers who were retired on disability or who had been involuntarily retired, as well as child survivors of these groups of Federal employees.

Table 4-13 lists the major design features that make up a survivor benefit plan and shows the cost effects of alternative features under a new Federal system. For illustrative purposes, the plan used as the backdrop plan was designed to replicate the current CSRS as closely as possible, but with the addition of social security. This backdrop plan, used to estimate the cost of the alternative treatments for these features, deducts 50 percent of social security benefits from a pension benefit. To keep the cost of the integrated program constant with that of the current CSRS alone, the illustrative redesigned retirement program has a benefit accrual rate of 1.45 percent of high-3 years average pay for each year of service. Other features of the survivor benefit plan were designed to resemble the current CSRS. For preretirement death, survivor benefits are 55 percent of disability benefits determined using the disability formula, as is currently done. For postretirement survivor benefits, the annuity is reduced, like the current CSRS, by 2.5 percent of the first $3,600 and 10 percent of the remaining annuity; the benefit to the survivor is 55 percent of the unreduced annuity. Children's benefits are payable according the current law. There are no benefits to divorced spouses. The cost effects are shown as the change in the percent of payroll each alternative treatment of the design features would add to the cost or would save. The costs shown in this table are only illustrative and are intended to indicate the general magnitude of the costs of the different alternative design features. As the table shows, variation of individual design features of a survivor plan usually changes the cost of a pension plan by less than 1.0 percent of pay (about $700 million).

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[51] Of this 32.2 percent, 25.2 percentage points is paid by the Federal Government and the other seven percentage points is paid from employee contributions.

1. Financing

An important feature of a survivor benefit plan is how it is financed: If survivor benefits were provided as part of the pension plan and no reduction were made to the annuity of a retiree to provide that coverage, the cost of survivor benefits would increase by 1.1 percent of payroll. In contrast, if a 50 percent joint-and-survivor plan with a full actuarial reduction were adopted, 0.7 percent of payroll would be saved.

Accurately estimating the normal cost of this change in survivor benefits is somewhat problematic, however, Under current law, a survivor benefit is provided through a reduction in the annuity of the retiree of 2.5 percent of the first $3,600 per year plus 10 percent of the annuity above that amount. Since $3,600 is not indexed for inflation, when entry age normal costs are projected to the year 2030, the value of the $3,600 is eroded substantially. The effect is that by the year 2030, current law will produce a reduction in the annuity of a retiree of about 60 percent of a full actuarial reduction, which is about 16 percent. Therefore, a comparison of the current law (without indexing the $3,600) in 2030 with an actuarially financed survivor benefit in that year understates the real difference between the cost of the current system and a 50 percent joint-and-survivor plan with a fully actuarially financed survivor benefit. Consequently, adoption of a 50 percent joint-and-survivor plan instead of the current plan would have little cost impact for new employees.

2. Social security integration

Under the backdrop plan, the survivor benefit is computed as a percentage of the pension after the social security offset has been taken—the procedure used in most private pension plans. If survivor benefits were computed on the basis of the pension *without* the offset followed by a 100 percent offset of the pension against payable social security benefits, the normal cost of the retirement plan would decrease by 0.3 percent of pay.[52] Alternatively, if the survivor benefit were computed as 55 percent of the pension *plus social security,* the cost would increase by 0.1 percent of payroll under a 50 percent offset plan. Again, this estimate assumes that pension benefits would be fully offset against the social security benefits.

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[52] While computing the survivor benefit on a somewhat larger pension would increase costs, the 100 percent offset of survivor benefits against social security would save a greater amount of pension costs.

TABLE 4-13. Cost Effects of Alternative Design Features For Survivor Benefits

Design Features Treatments	Increase (+) or Decrease (-) in Percent of Payroll
A. POSTRETIREMENT SURVIVOR BENEFITS	
1. Financing	
a. Current CSRS; partially employer-financed	----
b. 50 percent joint-and-survivor; fully employee-financed	-0.7 a/
c. Full entitlement; fully employer-financed	+1.1 a/
2. Social security integration	
a. Employee pension offset before computation of survivor benefit	----
b. Survivor benefit computed on pre-offset pension; social security survivor benefit offset 100 percent against CSRS survivor benefit	-0.3
c. Automatic entitlement of benefits to all spouses and former spouses (if married 10 years)	+0.1
5. Retirement benefits to divorced spouses	
a. Current system: under State court order only	----
b. Presumption of entitlement to proration of the CSRS pension subject to State court review	0
6. Children's benefits	
a. Current CSRS: lesser of three specified amounts with age limits	____
b. Current prevailing private practice: social security only	b/

c. Compute survivor benefit as 55 percent of both the pension and social security; social security survivor benefit offset 100 percent against the CSRS survivor benefit	+0.1
3. **Spouse consent**	
a. Current system of spouse consent to waiver	----
b. Mandatory survivor coverage for spouses of all workers married at the time of retirement	+0.1
4. **Survivors benefits to divorced spouses**	
a. Current system: under State court order only	----
b. Presumption of entitlement to proration of survivor benefits, subject to State court review	0
B. **PRERETIREMENT DEATH BENEFITS**	
1. **Date of eligibility**	
a. 18 months	----
b. At vesting for pension	-0.1
c. At early retirement age	-0.2
2. **Availability of a survivor annuity to spouse survivor of former employee awaiting a deferred annuity**	
a. Current system	----
b. Allow choice of returned contributions or an annuity	+0.7
3. **Children's benefits**	
a. Current CSRS: lesser of three specified amounts with age limits	----
b. Current prevailing private practice: social security only	b/

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a/ See the discussion of financing postretirement benefits that follows.

b/ Less than .05 percent savings.

3. Spouse consent

Before the enactment of P.L. 98-615, the CSRS required that the spouses of married Federal workers be notified if, at the time of retirement, the worker did not elect full spouse survivor coverage. The new law requires spouse *consent* rather than notification. However, if spouse survivor coverage were made *mandatory*, and the current financing arrangements were used, the cost of the retirement system would increase by an estimated 0.1 percent of pay.

4. Survivor benefits to divorced spouses

The CSRS as modified by P.L. 98-615 provides survivor benefits to divorced spouses of deceased Federal workers if there is a court order providing for survivor benefits. The options for providing survivor benefits from a new civil service pension plan to divorced spouses are: 1) presumption of entitlement to proration of a survivor benefit, subject to State domestic relations court review and modification, and 2) to entitlement of a full spouse survivor benefit to all spouses and former spouses married at least 10 years to the deceased worker. Provision of a prorated survivor benefit for former spouses would have no effect on the cost of the system; entitlement of a full survivor benefit to all spouses meeting the marriage requirement would increase program costs by 0.1 percent of pay.

5. Retirement benefits to divorced spouses

Under current law both private pensions and CSRS pensions can be divided between the retiree and a former spouse if specified by a State court. If, under a new plan, OPM were required to divide pension income according to a pro rata formula taking years of marriage during creditable service into account, there would be no increase in the benefit costs of the retirement program because no new additional benefit would be created.

6. Date of eligibility for preretirement death benefits

A design issue pertaining to preretirement death benefits is the service requirement for payment of an annuity to the survivor of a worker who dies before retirement. Benefits are now provided as an annuity if the worker had at least 18 months of service. If the worker were required to be vested (five years of service) the savings would be 0.1 percent of payroll; if survivor annuities were provided only to the survivors of workers who die at at least age 55 (the early retirement age specified in most private plans), the savings would be 0.2 percent of payroll.

7. Deferred survivor annuities

Finally, if survivor annuities were made available to the survivors of workers who leave Federal employment but who die before drawing a deferred annuity at age 62, 0.7 percent of payroll would be added to the cost of the program.

8. Children's benefits

Because benefits to surviving children constitute a very small portion of the cost of the retirement system, the cost effects of eliminating all children's benefits payable from the CSRS and, instead, paying social security children's benefits would be negligible.

CHAPTER 5: ANALYSIS OF FIVE ILLUSTRATIVE PLANS

I. INTRODUCTION

In Chapter 4, important plan provisions were analyzed by showing the impact that variations in the provisions had upon costs and benefit distributions. The beginning point in the presentation of each provision was to replicate the current CSRS, but with the introduction of social security benefits. Features of plans common to employment outside the Federal Government were then introduced so that their effect on costs and benefits could be compared to the current system. The comparisons were displayed by showing the provision alternatives across different age, service and salary combinations.

As stated in Chapter 4, comprehensive data on costs and benefits can be developed only in the context of complete plans. For the CRS models to generate data, all plan provisions must be specified. Yet, it was necessary to recognize sensitivity of costs and benefits to variations in provisions before complete plans were compared. Because the study based its approach on the assumption that the components of pension plan design could be discussed separately, it became necessary to construct as an artifice—a backdrop plan—that would remain constant while each provision was being reviewed. Otherwise the sheer volume of potential plans would be unmanageable.

The five plans analyzed in this chapter illustrate the context within which specific provisions operate. These plans are not recommendations, but are devices to be used with previous chapters, so that fundamental themes in design can be analyzed. The concept of a backdrop plan has thus been brought foward into this chapter but in a new way: The context, or background itself is varied by some typical approaches, so that combinations of features can be illustrated. The reader should refer to Chapter 4 to determine the approximate effect within any of these five approaches of varying specific provisions.

The array of retirement benefit designs represented by these plans is not exhaustive, but reflects a range of possibilities. The tentative objectives discussed in Chapter 4 were used to develop the various designs. Thus, plan I most closely replicates the current CSRS, and plans IV and V differ from it according to the extent that private and State pension structures have been incorporated. Plan II incorporates social security by the integration technique most widely used in the private sector, but holds all other provisions the same as the current CSRS. Plan III copies plan II, but adds a capital accumulation plan. Plans IV and V differ from each other only by the technique for coordinating with social security, but both introduce early retirement reductions, reduced COLA, and capital accumulation plans.

The disability component in the backdrop plan was structured so that it would approximate the benefits payable under the current CSRS. The social security disability provisions were introduced with the smallest feasible effect upon the system. However, as Chapter 4 showed, the current CSRS disability program is often criticized and would require considerable modification before it could resemble private sector practice. For these five illustrations, a disability plan was developed that approximates the approach common to the private sector. This disability approach separates short- and long-term disability and introduces the social security disability definition into the determination of lifetime awards. Benefit levels are increased to typical private sector levels, including social security.

The survivor benefit approach in the backdrop plan maintained the current system approach with minimum changes to accommodate social security. For these illustrations, a survivor benefit component was adopted that closely replicates private sector practice. The principal alternative approach—financing survivor benefits on the basis of a definition of eligibility for benefits, with costs borne by the system rather than by retirees—would increase the cost of the overall retirement system by 1.1 percent of payroll.

The accrual rates for the five plans have been calibrated to project approximately the same employer cost as the current CSRS. The CRS cost model projects the normal cost of the current CSRS to Government to be 25.2 percent of pay (32.2 percent system normal cost minus seven percent employee contributions). Because one of the important tradeoffs in plan design is in the amounts employees can be expected to pay for retirement protection, the plans assume different levels of employee contributions. In three of the plans, the amounts that employees contribute are subject to some choice on their part. In these plans, the constant employer cost has been determined by use of the concept "percent of full participation" (see Chapter 4 and Appendix C).

TABLE 5-1.—BASIC RETIREMENT PROVISIONS: FIVE ILLUSTRATIVE DESIGNS WITH EQUAL COSTS

Plan	Replication 100 percent offset I	Replication with social security II	Replication with social security and capital accumulation plan III	Private sector model IV	Add-on model V
Pension benefit formula (accrual rate)	1.78 percent × yrs	1.4 percent × yrs	1.3 percent × yrs	1.7 percent × yrs	1.2 percent × yrs.
Social security coordination	Less 100 percent of social security.	Less 50 percent of social security.	Less 50 percent of social security.	Less 50 percent of social security.	None.
Retirement with:					
Full benefits	Age 55, 30 yrs. Age 60, 20 yrs. Age 62, 5 yrs.	Age 55, 30 yrs. Age 60, 20 yrs. Age 62, 5 yrs.	Age 55, 30 yrs. Age 60, 20 yrs. Age 62, 5 yrs.	Age 62, 5 yrs.	Age 62, 5 yrs.
Optional benefits partially reduced	None	None	None	Age 55, 30 yrs. Age 60, 20 yrs.	Age 55, 30 yrs. Age 60, 20 yrs.
(Amount of reduction)	None	None	None	3.0 percent per yr.	3.0 percent per yr.
Pre-age 62 supplement	Yes	Yes	Yes	No	No.
Postretirement adjustments	Full	Full	Full	50 percent CPI	50 percent CPI.
Mandatory employee contributions to pensions	7 percent.[1]	None	None	None	None.
Capital accumulation plan	None	None	50 percent match of employee contributions to 6 percent of pay.	100 percent match of employee contributions to 6 percent of pay.	100 percent match of employee contributions to 6 percent of pay.

[1] In 1984, 1.3 percent plus 5.7 percent social security and medicare tax on the social security maximum wage base, 7 percent above that base.

PROVISIONS COMMON TO ALL PLANS

Vesting

Retirement: 5 years.
Capital Accumulation: Immediate.

Disability

Definition: First 24 months, unable to perform in position; after 24 months, totally and permanently disabled for any occupation (social security definition).

Amount: 60 percent of pay minus social security, or accrued retirement benefit, whichever is greater.

Survivor benefits

Preretirement death: 55 percent of accrued retirement benefits.

Postretirement death: If elected, causes a reduction in the retirement annuity of 2.5 percent of first $3,600 annually; plus 10 percent on amounts over $3,600; survivor benefit is 55 percent of annuity before reduction.

Service requirement

Immediate retirement: 10 years at age 55 with full actuarial reduction.
Deferred benefit: 5 years, payable beginning at age 62.

II. DESCRIPTION OF INDIVIDUAL RETIREMENT PLANS

A. PLAN I (REPLICATION: ONE HUNDRED PERCENT OFFSET)

Plan I closely replicates as many of the current CSRS provisions as possible. Benefits of the current CSRS are directly proportional to earnings, and the plan distributes benefits among participants along the same general lines as the current CSRS. This distribution would violate IRS guidelines for pension plan distribution in the private sector. Benefits computed under the retirement formula are reduced by 100 percent of the primary social security benefits accrued in Federal employment. Employees pay the same for the retirement as under the current system (seven percent), but in a combination of social security and pension contributions equal to that amount. Employees who leave government service before retirement age can receive a refund or retain deferred rights to full benefits upon reaching age 62 or to reduced benefits at age 55. Workers can retire on full benefits at age 55 with 30 years of service, and they receive a supplement equal to the social security benefit payable at age 62. Because the accrual rate has been calibrated to maintain a constant government cost, and because employees are required to pay the same rates as at present, the overall system cost is nearly the same as the current CSRS. This, and the costs of the other illustrative plans, will differ slightly from the baseline case because of rounding in the accrual rate.

B. PLAN II (REPLICATION: FIFTY PERCENT OFFSET)

Plan II has a 50 percent offset of primary social security benefits, a distributional approach common to plans in the private sector. Also, plan II does not require employee contributions, although as in all five plans, employees pay the full social security tax. All other provisions are held constant. The cost to the government of plan II is held constant, except for accrual rounding, but overall plan costs are .8 percent of pay lower, because of the absence of employee contributions. Thus, replacement rates will also be lower.

C. PLAN III (REPLICATION WITH SOCIAL SECURITY AND CAPITAL ACCUMULATION PLAN)

Plan III contains the same pension provisions as plan II but has a lower accrual rate. The accrual rate was calibrated to achieve savings equal to the cost projected for a voluntary capital accumulation plan. That voluntary supplement is a 50 percent match of employee contributions up to six percent of pay. Average employee contributions were estimated at 3.30 percent of pay; yielding a government matching cost of 1.65 percent of pay. Thus, the government cost is projected as constant, except for accrual rounding, but the overall system cost is higher because of the estimated aggregate voluntary employee contributions.

D. PLAN IV (PRIVATE SECTOR MODEL)

Plan IV retains the same 50 percent offset approach in the pension formula as plans II and III. The cost to the government remains the same. Plan IV, however, introduces several significant changes needed to accommodate the cost of a more liberal capital accumulation plan.

1. Reduction factors are applied to workers retiring before age 62

In social security, the age at which full benefits can be received is 65 (rising to 67 by 2027), but reduced benefits can be received at 62. Reductions applied to benefits paid at 62 (currently 20 percent) make the present value of the income stream approximately equal to that which would be received at age 65. When the social security age for full receipt of benefits increases to 67, the actuarial reduction will climb to 30 percent for benefits received at age 62.

The current CSRS permits retirement with full benefits at age 55 after 30 years of service, although additional value is earned for additional service. If plan costs are held constant, reduction of benefits received by workers retiring before age 62 shifts plan dollars to workers who work to later ages. Full actuarial reductions would virtually eliminate the differences in the present value of benefits received by workers with the same service and salary base but who retire at different ages. Workers would tend to delay their retirement. Savings are achieved by reducing the number of people entering the rolls, by lowering the present values of those who retire at earlier ages, and by increasing the length of the active work life for which benefits are projected. If an employer desires an older workforce, early retirement reductions will further that goal.

Evidence from private sector plans shows that less than full actuarial reductions are sufficient to have a substantial impact upon the age of retirement. If a new Federal pension incorporated full actuarial reductions, they would be about 6 percent for each year of retirement before age 62. The plan adopts three percent benefit reductions per year. This rate would still reward workers retiring early, but at a lesser rate than today, and the value of additional service and of any anticipated salary increases would encourage civil servants to work to later ages.

2. Postretirement COLA's are reduced by one-half

The current CSRS has COLA equal to increases in the CPI. A one-half COLA will cause pension benefits to erode in value over time. In addition, the lower COLA may also affect the decision to retire, causing some workers to delay retirement.

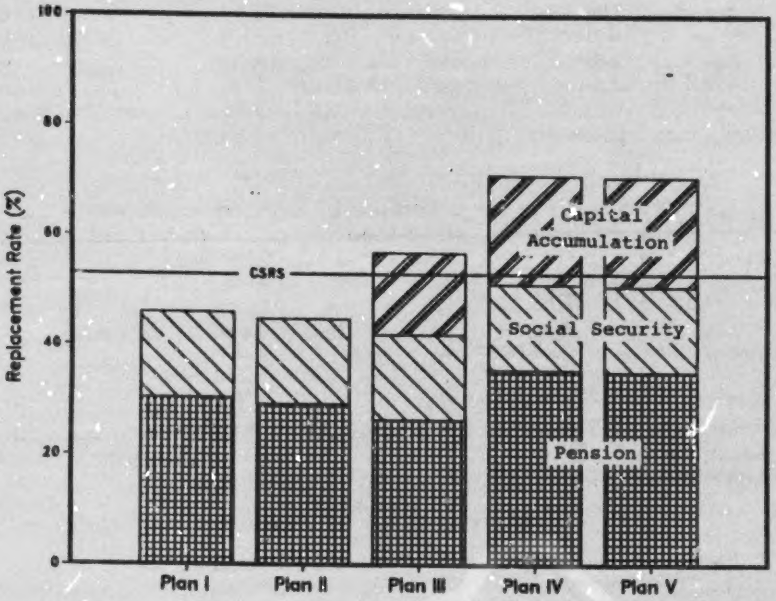
3. A capital accumulation plan matching dollar-for-dollar employee contributions up to six percent of pay is added

Part of the savings achieved from lowering benefits for early retirement and the COLA change were used to fund a capital accumulation plan that is more generous than that in plan III. The remainder was used to increase the accrual rate to improve overall plan generosity. Average employee contributions of 3.9 percent of pay are estimated; the Federal Government's cost is a similar amount.

E. PLAN V (STATE GOVERNMENT MODEL)

Plan V is identical to plan IV except that plan V uses an add-on approach to social security coordination, whereas plan IV used an integration (50 percent offset) approach. An add-on approach was selected, partly because of the frequency with which it occurs in State government pensions, but also because an add-on plan, by maintaining the social security tilt, frames the distribution issue. By comparing the distribution by income of plan V with plan I, the contrast with the current CSRS is easily seen. Likewise, by comparing plan V with plan IV, the contrast with the typical private sector model is also seen.

FIGURE 5-1.—Comparison of Five Illustrative Plans at Constant Employer Cost: Gross Replacement Rates for a Single Worker Age 62 With 30 Years of Service—$30,000 Final Salary



III. COMPARISON OF THE FIVE PLANS

Figure 5–1 compares the five plans to each other and to the current CSRS. A worker is shown retiring at age 62 with 30 years of service and a final salary before retirement of $30,000. This worker is, therefore, a typical full career worker with an average final salary. The checkered area represents amounts paid from the pension. The area immediately above the pension represents social security. The blocks above the social security benefit in plans III, IV, and V represent the benefits received by employees who participate fully in the capital accumulation plan designed to accompany those plans. The upper blocks reflect the annuity purchased by accumulated government and employee contribution and interest earnings over the 30-year career. The payout from these capital accumulation plans is indexed to the assumed rate of inflation.

A. CHANGES CAUSED BY SOCIAL SECURITY

As can be seen by figure 5–1, all of these plans provide lower replacement rates than the current CSRS unless workers participate in the capital accumulation. If employees pay more than they would pay to the current system, then replacement rates can be made to each or exceed current CSRS levels. The reason for lower benefits at constant cost, as has been discussed earlier, is that these plans distribute social security money in ways different from those used by the current CSRS. The introduction of social security into the structure of Federal employee benefits automatically redirects some money that would be paid through retirement provisions under the current CSRS, to different benefit provisions. The cost of this different distribution, after all differences in the patterns of payments have been offset, is between 2 to 3 percent of payroll, for the entire system, with about 2.0 percent of pay less in the funds available to pay retirement benefits. Broken down by component, these plan dollars are distributed primarily:

1. To portability

About two-thirds of the difference is distributed to workers leaving Federal employment who would not retain retirement benefit credits under the current CSRS.

2. To family benefits

Less than 0.5 percent of pay will flow to benefits for dependents not paid by current CSRS provisions.

3. To lower-income workers in other employment

Less than 0.5 percent of pay would be redistributed through the social security formula to lower-paid workers outside the Federal Government.

B. DISTRIBUTION BY INCOME

Figure 5-2 compares the benefit distribution of the five plans along the salary scale. The preretirement salaries displayed—$15,000, $30,000 and $45,000—were selected because they provided a roughly approximate general cross-section of the civil service population from low to high salaries, with $30,000 close to the average preretirement salary. All dollar amounts are comparable to 1984 salary levels.

Figure 5-2.—Comparison of Five Illustrative Plans at Constant Employer Cost: Gross Replacement Rates for a Single Worker Age 62 With 30 Years of Service

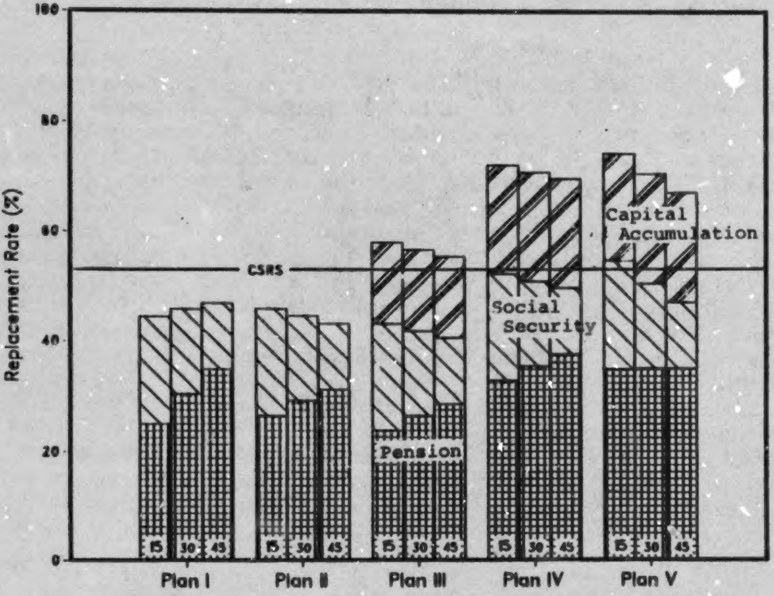


Figure 5-2 shows that plan I has a slight upward tilt in total benefits. This tilt is caused by the interaction between the social security reduction applied to benefits received at age 62, and the relative proportion of the total benefit provided by the pension at different income levels. (See Chapter 4 for a complete explanation of this upward benefit tilt.) The reduction has more impact at lower wages because a larger portion of the total benefit is provided by social security. Benefits would be level across all salaries at age 67 when the social security reduction would no longer apply. Plan I could be made to approximate the level distribution of the current system by subtracting from the pension 100 percent of the social security benefit actually paid instead of assigning a value to the full social security benefit payable at age 67. Private pensions are not permitted to offset 100 percent of social security.

Plans II, III and IV are integrated with social security. These three plans are 50 percent offset plans, the most common defined benefit plan in the private sector. Plans that lower pension amounts by 50 percent of the social security benefit distribute some plan money to higher paid workers, partially counteracting the redistributive slant in social security. Furthermore, 50 percent offset plans permit a flexible approach to other components of plan design while meeting Federal guidelines on the distribution of private plan benefits. Plan V is a plan that adds a full pension to social security, an add-on plan, and provides, from the pension itself, a level rate of wage replacement at all income levels. Total benefits in plan V thus reflect the distributional tilt of social security when the pension and social security benefits are combined.

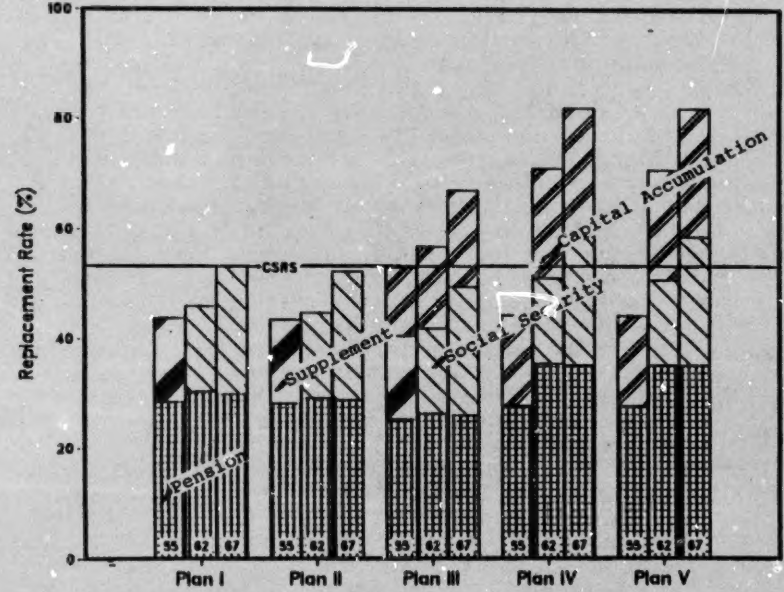
C. RETIREMENT AT DIFFERENT AGES

Figure 5-3 compares the plans for retirement at different ages. Retirement ages of 55, 62, and 67 were selected for display because they represent the ages at which fundamental changes in the structure of benefits occur: Age 55 is the earliest age for full benefits in the current CSRS; age 62 is the earliest age at which reduced social security retirement benefits can be received; age 67 is the age of full social security benefits in 2030. Individuals with 10 years of service are permitted to retire at age 55 with full actuarial reductions under all options because the small benefits payable at age 55 with 10 years of service will be sufficient to deter most workers who would want retirement at that age, because no costs are entailed, and because that practice is common to the private sector.

Plans I, II, and III retain the current retirement age structure. Nevertheless, because of social security benefit reductions for retirement before age 67, workers who remain at work until age 67 have higher benefits for the same number of years of service. Plans IV and V reduce benefits by three percent per year under age 62, but the savings are partly restored to overall generosity through changes to the accrual rate, and workers receive higher replacement rates at age 62 than they do under plans I, II, and III, even without participating in the capital accumulation plans. Not participating, however, means a loss of the employer match that is included in the cost of the plan, a cost which is calculated on the basis of a total workforce concept, i.e., the cost as a percent of total payroll.

Compare plans IV and V to the other plans in fugure 5-3. As figure 5-3 shows, the effect of introducing early retirement reductions combined with accrual rate increases is to provide all workers retiring at age 62 replacement rates under those two plans comparable to the current CSRS. Plans IV and V could not match replacement rates at age 55 for workers with average salaries even with full participation because the early reductions reduce benefits substantially. Replacement rates for full participants (six percent of pay) who retire at later ages exceed benefits payable to them under the current system by as much as 40 percent. Individuals retiring at age 55 under plan III would have replacement rates comparable to the current CSRS, if they were full participants in plan III's capital accumulation plan.

FIGURE 5-3.—Comparison of Five Illustrative Plans at Constant Employer cost: Gross Replacement Rates for a Single Worker With 30 Years of Service—$30,000 Final Salary



Note that although the pension benefits in plans I, II, and III remain the same, the social security benefit is higher for workers retiring at age 67 than for workers retiring at age 62 or age 55. This occurs because the supplement payable to workers retiring at age 55 is based upon social security benefits payable at age 62, and at age 62 social security benefits are reduced to 70 percent of the benefit payable at age 67. Because the average retirment age in the current CSRS is about age 61 with between 29 and 30 years of service, most pension outlays go to persons who retire before reaching the age of full social security benefits.

The social security benefits payable at age 62 and 67 are close actuarial equivalents—the present value of benefits received at the two ages is approximately the same but paid over different periods of time. Under the current CSRS, retirement at later ages with the same number of years service has a lower present value than the annuity amount paid at earlier ages. The current system distributes pension costs to earlier retirees and does not compensate workers rtiring at later ages for their lower present values for the same number of years of service. Therefore, the Social Security program distributes some money to older retirees that under the current CSRS would be used to pay benefits for workers retiring at earlier ages.

D. CAPITAL ACCUMULATION PLANS

Figures 5-2 and 5-3 show that capital accumulation plans can offer considerable increases in retirement income for workers who fully participate. It is important to note, however, that although these plans cost the government the same as the current CSRS, employees would be paying more for these greater benefits.

Compare plans II and III in figure 5-2. These plans differ only in one respect: Plan III has a lower pension accrual rate to provide the capital accumulation plan of the same employer cost. Figure 5-2 shows that the two plans have the same distributional tilt at the various salary levels. Because of the lower accrual rate, employees not participating in the capital accumulation supplement have pension benefits eight percent lower than in plan II, but those fully participating have total replacement rates about 34 percent higher. Average total replacement rates for employees fully participating are about 12 percentage points in replacement rate higher than in plan II and about 10 points higher than in plan I. Evidence from similar plans in the private sector shows that this discretionary plan will be used more by higher-paid workers than lower ones, and as a consequence, some employer pension dollars will be distributed upwards along the salary scale. Lower-paid workers might find it attractive, but have no money to invest.

Plans IV and V distribute even more money to the capital accumulation plan. A greater inducement to save is provided to employees at all salary levels, and participating employees thus receive an even larger share of the employer's pension costs. However, the penalty for non-participation is also borne by workers who retire early. Workers who did not participate but who worked until later ages would retire with higher initial benefits, than under plans I and II because the accrual rate was increased at the expense of early retirement benefits.

E. POSTRETIREMENT ADJUSTMENTS

Plans I, II, and III are fully indexed to the CPI, with annual adjustments, and their benefits retain full value over time. Plans IV and V are indexed to one-half of inflation, the inflation assumption used throughout the study, i.e., for percent a year.

Figure 5-4 shows the value over time of plan II, the 50 percent offset plan. Benefits retain their full value from the date of retirement through age 80 and beyond. Figure 5-5 shows plan IV, the 50 percent offset plan with a 50 percent COLA. Initial replacement rates for employees who participated fully in the capital accumulation plan begin near those of plan II, but decline until age 62, then jump substantially with the social security benefits and then decline as inflation continues to erode the pension.

These plans cost the government the same but employee costs differ. The employee not participating in the capital accumulation plan in plan IV and the employee in plan II, do not pay any contributions, but the plan IV employee receives one-third lower benefits at age 55. Figure 5-5 shows that plan IV employees who save six percent of pay receive higher replacement rates, but the average total replacement rate exceeds that of plan II by only 12 percent. A review of figure 5-3 will help explan why. As figure 5-3 shows, the early retirement reduction in plan IV causes money to be distributed to later retirement ages.

Figure 5-4.—Plan II: Fifty Percent Offset and Full CCLA—Gross Replacement Rates for a Single Worker Age 55 With 30 Years Service, $30,000 Final Salary

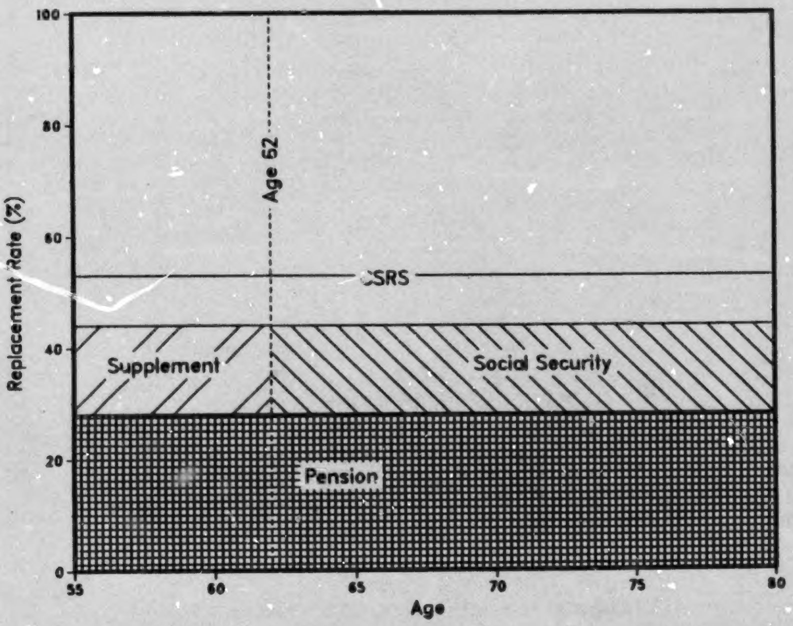
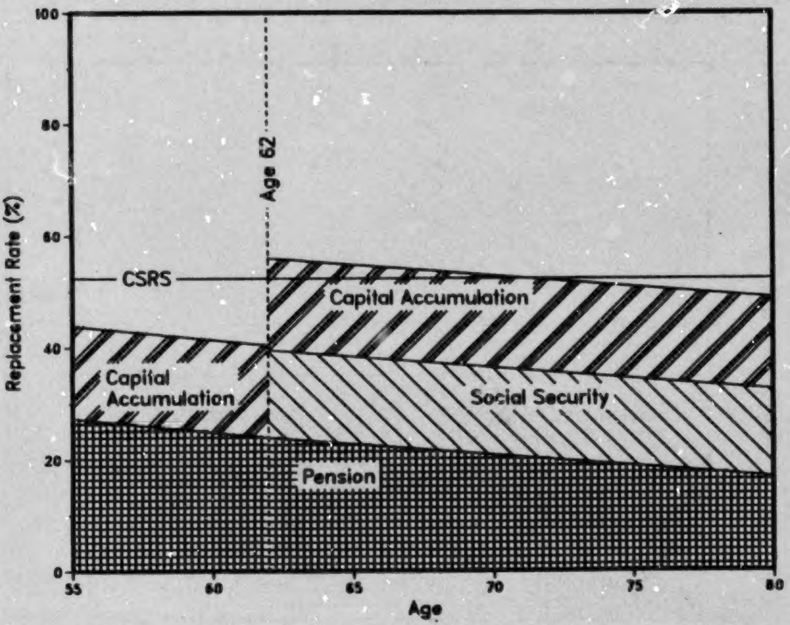


FIGURE 5-5.—Plan IV: Fifty Percent Offset, Early Retirement Reductions, 50 Percent COLA and Capital Accumulation—Gross Replacement Rates for a Single Worker Age 55 With 30 Years of Service, $30,000 Final Salary



IV. DESCRIPTION OF ILLUSTRATIVE DISABILITY PLAN

Under all five illustrative plans, the one disability benefit plan is shown because of the need to highlight retirement plan issues. See Chapter 4 for a complete discussion of disability plan issues. This plan was selected because it closely conforms to typical private sector practice.

A long-term insurance plan provided by the government would pay 60 percent of pay for employees permanently disabled. Up to 24 months following onset, eligibility would be based on a medical finding that the employee is unable to perform the duties of his then current position, or a vacant position in the same grade or pay level in the same agency and commuting area. After 24 months following onset, benefits would continue only if the individual met the social security definition of disability. Whenever an individual is entitled to social security the long-term insurance plan would offset the PIA by 100 percent. After the offset, the benefit would be no less than the accrued retirement benefit, but no more than the normal retirement benefit projected for age 55.

A worker would become eligible for the long-term insurance after six months on the job. The COLAs (applied to the *net* long-term disability payment—60 percent of final pay minus the initial social security PIA) would be the same as under the retirement formula in each plan. Long-term disability benefits would terminate upon medical recovery or attainment of age 62. At that point the individual's benefit would be converted to a retirement benefit based on projected years of service from date of hire to age 62, using the retirement benefit formula. Wages used in determining the retirement would not be indexed.

V. SURVIVOR BENEFIT PROVISIONS USED WITH ILLUSTRATIVE RETIREMENT PLANS

One survivor benefit plan is used for each of the optional retirement plans. The survivor plan was designed to closely replicate the survivor benefit computation procedure, i.e., the private sector as well as the CSRS benefit without a minimum guarantee. Because survivor benefits are related directly to benefits computed under the retirement formula, *benefit amounts* that result from this procedure when used with a redesigned retirement plan will differ from those under the current plan.

It is assumed that the postretirement survivor benefit will be provided at the option of the retiree, as it is under current law, and with the same arithmetic reduction to the annuity of the retiree—2.5 percent of the first $3,600 in annuity (unindexed) plus 10 percent of the annuity above that amount. The survivor benefit is 55 percent of the annuity before this reduction.

The retiree could elect to provide an actuarial equivalent benefit to any designee. Otherwise there is no benefit paid to children, divorced spouses, or other survivors.

VI. ANALYSIS OF COSTS OF FIVE ILLUSTRATIVE PLANS

These five plans have been designed and their accrual rates calibrated to achieve a uniform cost to the Federal Government as employer. Because the amounts that employees contribute vary from plan to plan, the overall generosity of benefits also varies. Table 5-2 compares normal costs broken down by plan component and compares the five plans to each other and to the current CSRS. The COLA relative to each plan has been included in the cost of each benefit component.

TABLE 5-2.—PROJECTED NORMAL COSTS BY BENEFIT COMPONENT (INCLUDING COLA) FIVE ILLUSTRATIVE PLANS AND THE CURRENT CSRS

	Current CSRS	Illustrative plans				
		I	II	III	IV	V
Voluntary retirement	18.95	11.92	11.41	10.40	9.18	9.03
Non-voluntary retirement	2.72	1.86	1.83	1.67	0.47	0.47
Survivor and family benefits	3.84	2.15	2.07	1.88	1.61	1.60
Disability	4.72	2.67	2.66	2.56	2.51	2.52
Deferred benefits/refunds	1.51	0.91	1.03	0.93	1.35	1.42
Other benefits and costs	0.47	0.29	0.28	0.26	0.25	0.25
Capital accumulation plan				4.95	7.80	7.80
Total pension plan cost	32.21	19.80	19.28	22.65	23.11	23.09
Social security contributions		12.12	12.12	12.12	12.12	12.12
Total pension system cost	32.21	31.92	31.40	34.77	35.29	35.21

TABLE 5-2.—PROJECTED NORMAL COSTS BY BENEFIT COMPONENT (INCLUDING COLA) FIVE ILLUSTRATIVE PLANS AND THE CURRENT CSRS—Continued

	Current CSRS	Illustrative plans				
		I	II	III	IV	V
Employer costs:						
Pension plan	25.21	18.86	19.28	17.70	15.37	15.29
Capital accumulation plan				1.65	3.90	3.90
Social security contributions		6.06	6.06	6.06	6.06	6.06
Total	25.21	24.92	25.34	25.41	25.33	25.25
Employee costs:						
Contributions to pension plan	7.00	0.94				
Capital accumulation plan				3.30	3.90	3.90
Social security contributions		6.06	6.06	6.06	6.06	6.06
Total	7.00	7.00	6.06	9.36	9.96	9.96

A. VOLUNTARY RETIREMENT

The table shows a considerable drop in the amounts that are spent by all five plans for retirement benefits, compared to similar benefits in the current system. Some of this loss in plans I through V would be made up by social security benefits. Yet, even plan I, the 100 percent offset plan, would show lower amounts on voluntary retirement benefits after the social security component is added. This loss would occur because of the difference in payment provisions between the two programs discussed earlier (dependents, portable benefits, etc.).

Plan II, a 50 percent offset plan with no employee contributions, shows that, in addition to the loss of money for retirement benefits caused by the differences between social security and CSRS, a further reduction in funds for retirement occurs because of lower employer contributions.

Plan III, a 50 percent offset plan with a lower-cost capital accumulation plan, reduces expenditures for voluntary retirement through a lower accural rate in the benefit formula. The accural rate was selected so as to achieve savings sufficient to pay for the capital accumulation plan.

In plan IV, a 50 percent offset plan, the accrual rate was actually increased over those of plans II and III, even though plan IV has the same integration technique and a higher cost capital accumulation plan than does plan III. Plan IV, however, has early retirement reductions and a lower COLA, both of which reduce costs of voluntary retirement.

Plan V, an add-on plan, with a higher cost capital accumulation plan, also has early retirement reductions and reduced COLA. Differences in the voluntary retirement costs of plans IV and V are insignificant and result more from irreducible differences in the actuarial programs developed to project their costs. As shown in Chapter 4, an add-on and offset plan costing the same with other provisions held constant merely distribute expenditures differently across the income scale.

B. NONVOLUNTARY RETIREMENT

Benefit reduction rules and a smaller COLA also have strong effects upon the costs of non-voluntary benefits because non-voluntary retirement occurs at any age with 25 years of service or at age 50 with 20 years. The three precent reduction for each year under age 62 substantially reduces those benefits. The impact on non-voluntary benefit expenditures for plans I, II, and III is not substantial. It generally follows the pattern of differences discussed under the previous section on voluntary retirement.

C. SURVIVOR AND FAMILY BENEFITS

As discussed previously, social security pays benefits under some circumstances not payable under the current CSRS. Thus, if social security were added to these provision expenditures, costs would exceed those of the current system for plans I and II by about three to four percent.

A more significant finding shown by this table is the extent to which the introduction of a capital accumulation plan in plans III, IV, and V, and the early retirement reductions and COLA costs in plans IV and V, have lowered the amounts payable under the survivor provisions. The survivor benefit component is held constant across all five plans. Because the postretirement survivor benefit is linked to the retirement benefit formula, the cost of the survivor component drops as much as 0.5 percent of pay with the drop in retirement expenditures.

D. DISABILITY BENEFITS

In contrast with survivor benefits, which were held constant and were limited to retirement, disability benefits were held constant and calculated independently. Thus, survivors share the losses in amounts spent on retirement benefits to help pay for capital accumulation plans, but expenditures for disability benefits are a direct result of the computation of disability benefits under that component's separate formula. Because disability annuitants would receive a flat replacement rate guarantee, most of which would be paid through social security, the disability component is not substantially affected by the introduction of capital accumulation plans in plans III, IV, and V. This can be seen by the relatively constant expenditures projected for disability across all plans.

E. DEFERRED BENEFITS/REFUNDS

Social security increases Federal expenditures for portable benefits to civil servants who separate before retirement by approximately 1.8 percent of pay for the backdrop plans. Thus, if the social security portability amount is added in on each of the five plans, all would show greater expenditures for deferred benefit rights compared to the current CSRS.

Plan II pays more in deferred rights than does plan I because in plan II there are no employee contributions. Vested employees in plan II do not forfeit rights if they separate. In plan I, some employees withdraw contributions and forfeit rights to future benefits. In plans III, IV, and V, these expenditures are a function of the vested rights given under the capital accumulation plans, which cause increases in deferred or portable rights even though the retirement expenditure is lower.

F. EMPLOYEE CONTRIBUTIONS

The current CSRS and plan I both require total employee contributions of seven percent of total pay. In plan I that seven percent includes the social security (OASDI) tax. Plan II requires employees to pay only the OASDI tax. Plans III, IV, and V grant employees the opportunity to save up to six percent of salary in a capital accumulation plan. Plan III matches half of the employee contribution, plans IV and V match the entire amount. Assumed average contributions can be seen in table 5-2. As figures 5-1, 5-2, and 5-3 show, fully participating in these capital accumulation plans provides substantial increases in replacement rates payable at age 62. Expenditures for capital accumulation plans increase overall expenditures for retirement.

In effect, plans III, IV, and V cause employees, especially those who are higher paid, to pay more if they desire to retain the retirement benefits of the current system. Plans IV and V, moreover, require employees to pay more to retain early retirement and COLA.

APPENDIX A: ADDITIONAL INFORMATION ON RETIREMENT SYSTEM PRACTICES IN THE PUBLIC AND PRIVATE SECTORS

I. CIVIL SERVICE RETIREMENT SYSTEM

This section provides a summary of general CSRS provisions that apply to most Federal employees and their survivors. For a more detailed explanation, see *Background on the Civil Service Retirement System* prepared by the Congressional Research Service (CRS) for the House Committee on Post Office and Civil Service (Committee Print 98-5, April 20, 1983).

A. SUMMARY OF GENERAL PROVISIONS THAT APPLY TO MOST EMPLOYEES AND SURVIVORS

1. General

a. Salary base.—Average of high three years earnings.

b. General formula.—Salary base times sum of:

—1½ percent for first five years service;
—1¾ percent for next five years service; and
—Two percent for remaining years.

Maximum of 80 percent of salary base.

c. Employee contributions.—Seven percent of covered salary.

2. Voluntary service retirement

a. Conditions:

—Age 55 with 30 years service; or
—Age 60 with 20 years service; or
—Age 62 with five years service.

b. Benefits.—General formula.

3. Involuntary retirement

a. Conditions:

—Age 50 with 20 years service; or
—Any age with 25 years service.

b. Benefit.—General formula reduced by ⅙ of one percent for each month under age 55 at retirement.

4. Disability

a. Conditions.—Five years of service.

—Unable to perform services of the current or an equivalent position in the same agency and commuting area because of disability.

b. Benefit.—General formula with minimum of 40 percent of base salary for most employees.

5. *Vested deferred annuity*

a. Conditions.—Five years of service.

b. Benefit.—Refund of contribution without interest or accrued general formula payable at age 62.

6. *Survivors*

a. Conditions.—The decedent must have been an employee with 18 months' service or an annuitant who elected a reduction (children's benefit payable even if a reduction is not elected).

—An unmarried (or married after age 55) surviving spouse is entitled to a benefit. Children must be under age 18, or under age 22 if a student, or disabled.

b. Benefit.—Spouse of employee—55 percent of general formula with minimum of 22 percent of salary base for most survivors.

—Spouse of annuitant—55 percent of portion of the annuity on which reduction was taken.

—Children—Updated per year per child up to three children. This amount is increased by the cost-of-living formula.

7. *Cost-of-living adjustment*

After recent changes in the law, annuities are to be adjusted each December by the amount that the Consumer Price Index (CPI) for the third quarter of that year exceeds the third-quarter average of the previous year.

B. SUMMARY OF PRESENT CIVIL SERVICE DISABILITY PRACTICES

Under the current civil service retirement system (CSRS), employees are eligible at any age for disability retirement after five years of creditable service and if they are unable, because of disease or injury, to perform the duties of: (1) their current position; or (2) a vacant position at the same grade or pay level for reassignment in the same agency and commuting area. An employee who is unable to do one or more essential functions of his or her current job because of a disabling condition (expected to last at least a year) is considered disabled. The system does not provide for partial disability (i.e., it will not pay a portion of the full disability benefit for less than fully disabling injuries).

The annuity begins the day after separation from service. The employee receives either an annuity computed under the standard retirement formula, or, if larger, a guaranteed minimum annuity of the lesser of 40 percent of high-three average salary or the annuity that would have been paid if he continued working until age 60 at the same high-three pay. Employees with less than 22 years of creditable service generally receive the guaranteed minimum. After entitlement, disability annuities are fully adjusted for inflation, with no additional benefits for dependents.

At the discretion of the Federal Office of Personnel Management (OPM), a disability annuitant may be required to undergo periodic medical reevaluations. These may occur annually until the annuitant reaches age 60. If a disability annuitant is pronounced recovered, his annuity ceases one year from the date of the medical reevaluation or, if earlier, upon Federal reemployment. Disability annuitants are also required to report their annual earnings. If in any calendar year the annuitant's income from work is at least 80 percent of the current salary of the position from which that person retired, his or her earnings capacity is considered restored. Benefits will therefore cease the following July, or upon Federal reemployment, whichever occurs first. Recovered annuitants are considered involuntarily separated as of the date the disability annuity stops but they can become eligible for CSRS retirement benefits when they meet the age and service requirements.

For short-term disability, each full-time employee receives four hours of sick leave every two weeks, or 13 days a year, which may be accumulated for future use. This protection is not part of the disability retirement system and so does not affect its cost.

C. CURRENT CSRS SURVIVOR BENEFIT PLAN

1. Preretirement survivor benefits

The CSRS provides survivor benefits to widows and widowers of Federal workers who die while still working and who had at least 18 months of Federal service, provided they were married at the time of death and had been married for at least nine months unless death was accidental). Unlike social security, divorced spouses are not automatically eligible for survivor benefits, regardless of how long the marriage had lasted, although a domestic relations court may stipulate that survivor benefits be provided. Also unlike social security, CSRS survivor benefits are payable to the widow or widower at any age and without regard to earned income or the presence of children. However, CSRS survivor benefits are terminated if the widow or widower remarries before age 55. Social security benefits are terminated for remarriage before age 60.

In cases of preretirement death, spouse survivor benefits are equal to 55 percent of the amount the deceased employee would have received had he or she retired at the time of death. This amount is known as the "earned annuity." However, to provide a floor under the benefits to the survivor of a young worker who dies with short service, a minimum benefit is provided equal to 22 percent of the employee's average high-3 salary, or 55 percent of the retirement annuity he or she would have received with years of service projected to age 60, whichever is less. For young workers who die with less than 22 years of Federal service, the minimum that usually pertains is 22 percent of the average high-3 years pay.

Benefits are also paid to surviving children of a deceased employee, provided they are under age 18 (or age 22 if in school or any age but incapable of self-support) and are unmarried. Somewhat lower children's benefits are paid when the deceased is survived by a spouse who is eligible for the spouse survivor benefit. If a deceased worker has a surviving spouse, each child gets an annual amount which is the smallest of:

- 60 percent of the high-3 years' average pay of the deceased worker, divided by the number of children, or
- \$2,805 [53] (indexed annually to the CPI), or
- \$8,417 [53] (also indexed), divided by the number of children.

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[53] These amounts will remain in effect until January, 1986.

In most cases, the benefits are $2,711. If a deceased worker has no surviving spouse or is divorced, each child gets the smallest of:

- 75 percent of the high-3 years' average pay of the deceased worker, divided by the number of children, or
- $3,368 [54] (indexed), or
- $10,106 [54] (indexed), divided by the number of children.

In most cases, the benefits are $3,368.

2. Postretirement survivor benefits

At the time of retirement, married workers have the choice of providing a spouse survivor benefit. Under CSRS before enactment of P.L. 98-615, this choice was available only one time to any one person. Therefore, if the retiring individual were married at the time of retirement but elected no survivor coverage for that spouse, he or she could never again elect spouse coverage, even if after retirement the person were widowed or divorced and subsequently remarried. However, if that same person *had* elected spouse survivor coverage at the time of retirement, survivor coverage could be provided for a spouse acquired after retirement. Under new law, a retiree may provide survivor coverage for a spouse acquired after the retirement if that coverage is elected within two years of marriage and if a deposit of the amount of the survivor reduction, plus six percent interest, is made back to the time of retirement (or the last date a reduction had been made for a previous spouse). Spouse survivor coverage may be rejected for a spouse acquired after marriage, in which case there is no subsequent opportunity to re-elect it.

Retiring workers electing spouse survivor benefits agree to accept a reduction in their annuity equal to 2.5 percent of the first $3,600 per year and 10 percent of their annuity above that amount. This reduction entitles the surviving spouse to 55 percent of the retiree's full life annuity (before the reduction). Alternatively, a retiring worker may elect to provide less than this full survivor benefit, in which case the retiree's annuity is reduced by 2.5 percent of the first $3,600 and 10 percent of the annuity above that amount, up to the limit he or she specifies as the base upon which the survivor benefit is to be computed. If, after retirement, the marriage of a retiree who had elected a reduced annuity to provide survivor coverage ends, his or her annuity is increased to the full amount. Upon remarriage, the annuitant has two years in which to elect survivor coverage for a new spouse, and the retirement annuity will again be reduced to provide that coverage, although a deposit must be made to cover the time during which no reduction was in effect. If this election is not made within the first two years of marriage, there is no other opportunity to elect spouse survivor coverage.

While a reduction is made in a retiree's annuity to provide survivor coverage, the amount of that reduction is not equal to a full actuarial reduction that would cover the cost of the survivor benefit. The CSRS uses an arithmetic reduction that is currently equal to approximately one-half of the cost of providing survivor benefits.

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[54] See footnote number 53.

Therefore, the Federal Government, as the employer, subsidizes part of the survivor benefits. The government's subsidy will eventually decline to about 40 percent of the cost of survivor benefits.

At the time of retirement, the decision to provide no survivor annuity or to provide less than the full amount requires the written consent of the spouse, and the consent must be notarized. Before enactment of P.L. 98-615 for CSRS and P.L. 98-397 for private pensions, spouse consent was not required to waive survivor benefits. If, for any reason, the worker cannot obtain the spouse's signature, the retirement application can be submitted to OPM without it. OPM then makes a good faith effort to locate the spouse and notify him or her of the election. After this effort is made, the application is processed without the spouse's consent, and no survivor benefit is provided.

Once retired, a Federal worker receives the annuity to which he or she is entitled, regardless of income from postretirement employment. While the retiree is alive and married, no additional benefits are provided either to the spouse or because the retiree is married. Single retirees and married retirees are eligible for the same annuities if they have the same service and final average salaries, the only difference being the elective reduction in the monthly benefits to a married retiree to provide spouse survivor coverage.

Benefits are available to surviving children of deceased retirees in the same amounts and under the same criteria that pertain for preretirement death.

The CSRS also allows retiring workers to provide survivor benefits to a person who has an "insurable interest" in the retiree. An insurable interest exists if the person named may reasonably expect financial benefit from the retiree's continued life.

A former spouse or a current spouse may be named as an insurable interest if a spouse survivor benefit is provided for one or the other. A retiree naming an insurable interest accepts an annuity reduced by 10 percent plus five percent for each full five years by which the named beneficiary is younger than the retiree, with the reduction not to exceed 40 percent. The benefit to the named individual is 55 percent of that *reduced* annuity, paid after the death of the retiree.

Federal employees may leave the civil service before eligibility for retirement but leave their contributions in the retirement fund and draw a deferred annuity which may begin at the age of 62. If such a person dies *after* having begun to draw the deferred annuity, the surviving spouse is eligible for 55 percent of that annuity if a survivor benefit had been elected. However, if such a person dies *before* reaching age 62, no survivor annuity is paid, but the spouse receives a refund of the contributions that had been made into the fund. The only exception to this rule is survivors of former Members of Congress. Widowed spouses of former Members of Congress may receive a survivor annuity based on a deferred annuity that had not yet commenced if they were married to the Member when he or she left Congress.

Civil service survivor benefits to surviving spouses, children and persons receiving insurable interest benefits are paid monthly and are automatically adjusted for changes in the CPI in the same way and on the same schedule as annuities to retirees.

II. SOCIAL SECURITY

This section provides a summary of general social security provisions that apply to most covered employees and their survivors. For a more detailed explanation of the social security system see *Background Material and Data on Major Programs within the Jurisdiction of the Committee on Ways and Means.* Committee Print 98-2, February 8, 1983. p. 13-88.

A. BRIEF SUMMARY OF SOCIAL SECURITY PROVISIONS THAT APPLY TO MOST EMPLOYEES AND SURVIVORS

1. General

a. Salary base.—Average of earned monthly earnings covered by social security, but updated to take account of changes in wage levels over time.

b. General formula.—(Primary Insurance Amount)—90 percent of first $280 of average monthly earnings, 32 percent of average monthly earnings between $280 and $1,691 a month; and 15 percent of the remainder.

c. Employee contributions.—5.7 percent of salary in 1985 increasing to 6.2 percent after 1989 up to the social security maximum salary ($39,600 in 1985). (Total including medicare is 7.05 percent in 1985 increasing ultimately to 7.65 percent in 1990.)

2. Full benefits at voluntary retirement

a. Conditions.—Age 65 with 10 years service increasing gradually beginning in 2003 to age 67 in 2027. Workers born before 1929 need less than 10 years' service for this and other benefits.

b. Benefit.—General formula, increased if older than full retirement age.

3. Early retirement

a. Conditions.—Age 62 with 10 years service.

b. Benefit.—General formula reduced by 5/9 of one percent for each month before retirement age.

4. Disability

a. Conditions.—Unable to perform any job because of disability after 1.5 to 10 years of service depending on age. For those over age 30, five years service in last 10 is also required.

b. Benefit.—General formula, with some modifications, paid beginning five full months after disability.

5. Vested deferred annuity

a. Conditions.—10 years of service.

b. Benefit.—Early retirement formula payable at age 62.

6. Survivors of deceased employees or annuitants

a. Conditions:

- —For benefits for children, or for spouses who have a child under age 16 in their care, the deceased employee must have 18 months of service;

—Spouse must be:
- age 60 or over; or
- disabled and at least age 50; or
- caring for eligible child who is under age 16 or disabled.

—Each child must be under age 18, or age 19 if in high school, or disabled.

—The family is limited to between 150 to 188 percent of the general formula.

7. Dependents of annuitants

a. Eligibility:

—Spouse must be age 62 or older or caring for an eligible child under age 16 or disabled.

—Each child must be under age 18, or age 19 if in high school, or disabled.

b. Benefit:

—Spouse receives half of general formula but reduced 25/36 of one percent per month if spouse is under normal retirement age; and

—Each child receives half of general formula; but

—The family, including former worker, is limited to between 150 and 188 percent of the general formula.

8. Inflation adjustment

Annuities.—Increased in December by the amount of the increase in prices since the last benefit increase if the increase is 3 percent or more. Future increases will be limited to the lower of increase in prices or wages if the fund falls below a specific level.

Maximum salary, and earnings breakpoints, are indexed by wage increases.

B. DISABILITY BENEFITS

1. Social security

The Social Security Disability Insurance (DI) program provides monthly cash benefits for workers under age 65 (and their dependents) who meet the definition of disability and are "insured" under the program. Workers are insured for disability if they: (1) have one quarter of coverage for each year elapsing between age 21 and the year they become disabled (with minimum of six and maximum of 40 quarters); and (2) except for persons who are disabled before age 31, have a total of at least 20 quarters of coverage during the 40-quarter period ending in the quarter in which they became disabled. Workers who are disabled before age 31 must have total quarters of coverage equal to half the calendar quarters which have elapsed since they reached age 21, ending in the quarter in which they became disabled. A minimum of six quarters is required.

Disability is generally defined as inability to engage in any substantial gainful activity (SGA) by reason of a physical or mental impairment. The impairment must be medically determinable and expected to last for at least 12 months or to result in death. A person may be determined to be disabled only if, due to this impairment, he is unable to engage in any kind of substantial gainful work, considering his age, education and work experience which exists in the national economy, regardless of whether such work exists in the immediate area in which he lives, or whether a specific job vacancy is available, or whether he would in fact be hired if he applied for work. There are special definitions and eligibility requirements for persons who are blind.

An initial five-month waiting period is required before disability insurance benefits will be paid. A worker disabled for at least 24 months is eligible for medicare benefits.

A worker's social security benefit is based on his earnings history in jobs covered by the social security system. The worker's past earnings are updated through an indexing procedure to take account of the growth in average wages over the years. These indexed earnings are then averaged over the worker's career to derive an average earnings figure, which is used in the formula that determines initial benefits. Both earnings and the formula are adjusted each year to take account of the average growth in wages, so that initial benefit levels will remain stable relative to changes in the standard of living. Years of lowest earnings after age 21 (up to five) may be excluded from the computation of average career earnings. The number of years excluded is proportional to the age of the worker.

Benefit levels are generally related to career earnings, but a "weighted" benefit formula gives higher relative benefits to low-wage earners, i.e., workers with low career earnings have a larger proportion of their earnings replaced by social security benefits. Dependents' benefits are calculated as a percentage of the worker's basic benefit, subject to a family maximum. Benefits received after the first year of entitlement are periodically adjusted to keep pace with inflation.[55]

Disability benefits continue until it is determined that the individual is capable of performing substantial gainful activity. Benefits cease three months after such a determination. The law requires that nonpermanently disabled beneficiaries have their eligibility reviewed at least once every three years.

Currently, earnings of $300 or more a month are considered *prima facie* evidence of ability to engage in substantial gainful activity. However, a 24-month "trial work period" is provided for disabled beneficiaries who attempt to work. During the first 12 months of work, earnings are disregarded and benefits are not paid for any month in which the individual is engaged in substantial gainful activity, but the individual is reinstated automatically if earnings fall below the SGA level. Medicare benefits may be continued for 24 months after the expiration of the trial work period.

If an individual medically recovers to the extent that he no longer meets the definition of disability, benefits are terminated regardless of the "trial work" provision. Only one trial work period is permitted for each period of disability.

When a disabled worker under age 65 qualifies for disability benefits that are provided by Federal, State and local governments and worker's compensation, the social security benefits payable to him and his family are reduced by the amount, if any, that the total monthly benefits payable under all the programs exceed 80 percent of his average current earnings before he became disabled. Needs-tested benefits, Veterans' Administration disability benefits, and benefits based on public employment covered by social security are not subject to this provision.

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[55] Social security benefits are increased in December of each year when inflation as measured by the Consumer Price Index rises by three percent or more from the approximate time of the last benefit increase.

III. Technical and Background Information on Private Pension Plans

This section provides technical and background information on private pension plans including: (1) their treatment under the Internal Revenue Code of 1954 and the Employee Retirement Income Security Act of 1974 (ERISA), (2) pension coverage, (3) distribution of benefit formulas for offset and step-rate plans; and (4) a brief description of the capital accumulation plans offered by private sector employers.

A. BRIEF SUMMARY OF THE EMPLOYEE RETIREMENT INCOME SECURITY ACT OF 1974 (ERISA)

Most private sector employee benefit plans are subject to minimum standards required by ERISA. ERISA is designed to protect the interests of pension plan participants and beneficiaries. Public employee pension plans and those sponsored by churches are generally not subject to the law. Public employee pension plans however must still comply with the pre-ERISA requirements of the tax code. These place specific limitations on benefits and contributions, set participation standards to ensure that such plans will not discriminate in favor of highly compensated employees, and require that funds be managed for the exclusive benefit of participants and beneficiaries.

ERISA supersedes all State laws that relate to employee benefit plans except for State insurance, banking and securities laws. An employee benefit plan may be either a pension plan (retirement benefits) or a welfare benefit plan (other kinds of employee benefits such as health and disability insurance). Most of the law's provisions deal with pension plans.

ERISA does not require employers to provide plans, but those that do must meet its rules. ERISA sets minimum standards on:

—who must be covered (participation),
—how long a person has to work to be entitled to a pension (vesting), and
—how much must be set aside each year to provide pensions when they are due (funding).

ERISA requires high fiduciary standards, reporting and disclosure requirements and pension benefit insurance.

Enforcement is assigned to the Internal Revenue Service/Department of the Treasury (participation, vesting, funding standards), the Department of Labor (fiduciary standards, and reporting and disclosure requirements), and a nonprofit government corporation named the Pension Benefit Guaranty Corporation (pension benefit insurance provisions).

B. TAX TREATMENT OF PRIVATE PENSION PLANS

Private pension plans receive favorable tax treatment under the Internal Revenue Code. If a pension, profit-sharing, or stock bonus plan qualifies under the tax law (i.e., qualified plan), then: (1) a trust under the plan generally is exempt from income tax; (2) employers generally are allowed deductions (within limits) for plan contributions for the year for which the contributions are made, even though participants are not taxed on plan benefits until the benefits are distributed; (3) benefits distributed in a lump sum may be accorded special long-term capital gain treatment or 10-year income averaging treatment, or may be rolled over, tax-free, to an individual retirement arrangement (IRA) or another qualified plan; and (4) limited estate and gift tax exclusions are provided.

C. PRIVATE PENSION COVERAGE

Practically all private sector workers are covered by social security. About half of them are also covered by an employer-sponsored pension plan. Daniel J. Beller, an economist with the Department of Labor, prepared a report on patterns of worker coverage by private pension plans. The report was based on data collected by the Bureau of the Census as part of a special supplement to the May 1979 Current Population Survey (CPS). The term "coverage," as used in Beller's study, refers to employees who have met eligibility requirements for membership (i.e., participation). It does not include workers who are employed by firms with plans but who are not participating in the plan. At the time of his survey, workers could be excluded unless they had one year of service, or reached age 25, whichever came later. Once a worker is covered by a pension plan, he must still meet the plan's vesting and retirement eligibility requirements to receive a pension.

Beller found that about 35 million of the 60 million full-time wage and salary workers were employed in May 1979 by firms which sponsored or contributed, on behalf of their employees, to a private group retirement plan. About 30 million workers in these firms—or about 50 percent of all full-time workers—had met the plan's participation requirements. About another 10 percent of full-time workers were in jobs covered by a pension plan but had not yet met the plan's participation requirement.[56]

Beller found that while the coverage rate for young workers was low (27 percent under age 25), it generally increased with age, reaching 65 percent for workers aged 50–54. This suggests that many workers, though not covered when young, will finally receive pensions. Beller cautions, however, that many of the covered workers over age 50 were not yet vested and might retire or die before qualifying for benefits. Others might not be covered in their most recent job but may be entitled to a vested pension from previous work. Because of these factors, Beller was not able to relate the coverage ratio to the percent of retirees who ultimately will receive pensions.

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[56] Controversy exists over the best way to measure pension plan "coverage." Some analysts suggest that it is inappropriate to describe pension coverage among all workers. Rather, they urge that only workers who meet ERISA standards for pension coverage should be considered. If only workers meeting the former ERISA participation standard are considered (i.e., full-time workers age 25 or with one year of service), private pension plan coverage would increase from 50 percent to about 61 percent. The Retirement Equity Act of 1984 (P.L. 98–397) reduced the age for participation to 21.

Beller found that the overall coverage rate for men (55 percent) was substantially higher than for women (40 percent). The higher coverage rate for men resulted from both a greater probability of being employed by a firm sponsoring a retirement plan and, among workers in firms with plans, a higher probability of being covered by the plan. Other factors such as tenure, age, inclusion in a collective bargaining unit, size of establishment, industry, occupation, income and race were also related to the rate of coverage. This is summarized in table A-1.

Table A-1.—Pension Plan Coverage in May 1979

Who is covered?

- about 50 percent of all full-time workers were participating in a company pension plan.
- another 10 percent of full-time workers were in jobs covered by a pension plan but had not met the plan's participation requirements (age 25 and one year of service).
- 84 percent of full-time workers in large and medium (100-250 employees) sized companies.
- 78 percent of union employees.
- 61 percent of professional and technical workers.
- 72 percent of workers earning $15,000 or more.

Who is not covered?

- 66 percent of workers in small firms (less than 100 employees).
- 70-75 percent of retail and service workers.
- 69 percent of low wage workers earning less than $10,000.
- 60 percent of women.
- 60 percent of non-union workers.

Source: Department of Labor Analysis of Bureau of the Census May 1979 Current Population Survey.

Some preliminary findings from a 1983 survey show that pension coverage is sensitive to business cycle conditions. Because of the recession, pension coverage dropped four percentage points from 50 percent in 1979 to 46 percent in 1983. The data supporting the findings stem from a nationwide survey sponsored by the Employee Benefit Research Institute (EBRI) in conjunction with the Department of Health and Human Services (DHHS), and conducted by the U.S. Bureau of Census during its May 1983 Current Population Survey. While pension coverage among women increased slightly, pension coverage for men slipped through layoffs, dismissals and plant closings in many of the high coverage manufacturing industries.

D. PRIVATE PENSION BENEFIT RECEIPT

Despite an apparent leveling off in the percentage of private sector workers covered by pension plans, the number of individuals receiving benefits is increasing rapidly as the private pension system matures.[57] According to Bureau of the Census figures, the number of elderly individuals receiving private pensions has more than doubled in the last decade—growing from 2.1 million in 1969, to 3.3 million in 1974, to 4.8 million in 1980.

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[57] For a further discussion see, Trends in Pension Coverage and Benefit Receipt, by Sylvester J. Schieber, the Gerontologist, vol. 22, no. 6, 1982.

The Department of Labor's Survey of Private Pension Benefit Amounts shows that the average pension received in 1978 was $3,676 (in constant 1980 dollars). The average alone can be misleading since it reflects both long and short working careers and includes persons who retired many years earlier whose pensions have not kept pace with inflation. For example, the average benefit received by persons age 55–59 was $4,817—over 30 percent greater; for persons age 60–64 the average benefit was $4,576—about 25 percent greater.

There is a significant difference between the average benefits received by men and women. The average pension benefit received by male retirees in 1978 was $3,957—$1,409 greater than the average female benefit of $2,548. This difference would be related in part to average preretirement earnings. Male preretirement earnings averaged $21,429—more than 50 percent above the female average of $14,031.

E. RETIREMENT BENEFIT FORMULAS COVERING SALARIED EMPLOYEES

Salaried employees are primarily covered by earnings-related plans integrated with social security. The Bureau of Labor Statistics (BLS) provided CRS with a special tabulation of offset and step-rate benefit formulas for plans in their 1982 survey of employee benefits. The survey provides representative data for 21 million full-time employees in a cross section of the Nation's private industries. The BLS studied 976 pension plans representing 17.6 million participants. The survey was designed to provide OPM with information on benefits of private sector employees in order to compare them with benefits of Federal workers. According to OPM design specifications, it excludes firms in Alaska and Hawaii and establishments employing fewer, depending on industry, than 50, 100, or 250 employees. Because of these and other exclusions, the data do not statistically represent all employees in the United States, nor even all employees in private industry. It is the broadest survey of pension practices and other employee benefits in the private sector.

1. Offset plans

Table A–2 is based on 221 offset plans. The table shows the participants covered by these plans are broadly distributed. About one-half the participants are in plans providing a benefit accrual of between 1.5 to 1.75 percent of final average earnings, with varying percent offsets of social security, for each year of service. Offsets between 1.25 and 1.67 percent are common.

TABLE A-2.—PERCENT OF FULL-TIME PARTICIPANTS IN PRIVATE PENSION PLANS [1] HAVING FINAL AVERAGE EARNINGS FORMULAS [2] WITH PROVISION FOR SOCIAL SECURITY OFFSETS, MEDIUM AND LARGE FIRMS, 1982

Formula percentage rate applied to final average earnings per year of service [4]	All [5]	Social security offset provision [3] (based on 221 plans)												Flat percent offset	Other [6]
		Total	Less than 1.00	1.00	1.01 to 1.24	1.25	1.26 to 1.49	1.50	1.51 to 1.66	1.67	1.68 to 1.99	2.00	Over 2.00		
All participants:															
Total	100.0	79.2	1.2	0.2		11.5	8.2	16.1	1.6	23.0	1.6	7.3	8.4	17.9	3.0
1.00	1.2	0.6	—	—	—	—	0.2	—	—	—	—	0.4	—	(7)	0.6
1.01 to 1.24	1.1	0.9	—	—	—	—	0.5	0.3	—	—	—	—	—	—	0.2
1.25	3.7	1.8	—	—	—	0.9	—	—	—	0.1	—	—	0.8	1.9	—
1.26 to 1.49	7.7	7.7	0.7	0.2	—	0.2	.8	0.7	—	4.5	—	—	0.5	—	—
1.50	23.6	20.7	—	—	—	5.6	2.3	6.1	0.5	5.1	—	—	1.0	2.8	0.1
1.51 to 1.74	29.0	26.6	—	—	—	4.2	3.7	8.6	1.1	8.2	—	—	0.9	2.4	—
1.75	4.6	4.3	0.5	—	—	0.7	—	0.2	—	0.7	1.5	—	0.8	—	0.3
1.76 to 1.99	3.2	2.9	—	—	—	—	0.3	—	—	0.1	0.2	0.5	1.8	0.4	—
2.00	14.8	7.8	—	—	—	—	0.3	0.1	—	4.1	—	2.6	0.7	5.2	1.8
2.01 to 2.24	4.0	0.3	—	—	—	—	—	—	—	0.3	—	—	—	3.7	—
2.25 to 2.49	2.5	1.7	—	—	—	—	—	—	—	—	—	1.0	0.7	0.8	—
Over 2.50	4.7	3.9	—	—	—	—	—	—	—	—	—	2.7	1.3	0.8	—

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[1] Excludes supplemental pension plans.

[2] Pension amount is calculated by multiplying average earnings during last years of work, times a specified rate, times the number of years of service. Only those plans that use a single rate for all years of service were tabulated. Other plans apply different rates to various service periods. Includes plans with alternative benefit formulas based on average annual career earnings.

[3] Social security offset provisions reduce the pension annuity by a specified percent of the social security benefit times years of service under the pension plan. Plans frequently place a cap on the percent of social security benefit which can be offset. The most common cap is 50 percent.

[4] Formulas specifying a flat percent of earnings after a specified length of service were prorated to obtain a percent per year of service.

[5] Two hundred twenty-one of 976 plans analyzed were found in which a final earnings formula was offset by social security benefits. Total participants in these plans as a proportion of pension plan participants within occupational groups was as follows: All participants—18.6 percent; professional and administrative—25.5 percent; technical and clerical—26 percent; and production—10.8 percent.

[6] Includes plans where the percent of the benefit offset per year of service varied with service. Also includes plans in which the offset is a flat dollar amount and plans in which railroad retirement benefit are offset.

[7] Less than 0.5 percent.

Note—Because of rounding, sums of individual items may not equal totals. Dash indicates no employees reported in this category.

Source: U.S. Department of Labor, Bureau of Labor Statistics. Unpublished data.

2. Step-rate plans

It is even more difficult to summarize the benefit formulas in step-rate plans because of an added dimension—the integration level above and below which the different accrual rates are applied. One way IRS permits plans to establish the integration breakpoint is to use the average of the maximum social security taxable wage bases in effect during each employee's work history (e.g., $3,600 through 1954, $4,200 through 1958, $4,800 through 1965, etc.). Since employees retire at different times, the allowable breakpoint would be different for each worker. Alternatively, IRS permits a plan to establish a single dollar breakpoint provided it does not exceed the average social security wage base over any covered individual's career. For someone retiring in 1985, this would be $13,800.[58]

Of the 976 plans in the BLS data base, 235 (24 percent) are integrated with social security using a step-rate formula. Table A-3 shows that the single largest category of step-rate plans (73 plans, or 31 percent) is based on final average earnings above and below the social security average taxable wage base.

TABLE A-3.—BREAKPOINTS USED IN STEP-RATE PLANS COMPUTING BENEFITS ON CAREER AVERAGE EARNINGS AND FINAL AVERAGE EARNINGS

	Number of plans		
	Career average earnings	Final average earnings	Total
Social security average taxable wage base	34	73	107
Integration breakpoint:			
$4,800 or less	14	15	
$4,801 to $6,600	14	15	
$6,601 to $12,000	18	21	
$12,001 to $19,999	7	9	
$20,000 or more	8	7	
Subtotal	61	67	128
Total	95	140	235

Source: U.S. Department of Labor, Bureau of Labor Statistics. Unpublished data.

Table A-4 shows the percent distribution of full-time participants in the 73 step-rate plans (noted above) that use the average social security taxable wage base as the breakpoint, above which the pension benefit accrual rate is increased. The reader should be cautioned that BLS does not consider such a small sample to be a statistically representative table for all step-rate plans. It does provide an insight, however, into the most prevalent category of step-rate plans found in their data base. It shows that for step-rate plans based on final average earnings using the social security average taxable wage base as the integration breakpoint, the most prevalent formula (covering 37.2 percent of the participants in step-rate plans) integrated with the social security tax base provides an accrual rate of one percent below the breakpoint and 1.5 percent above it for each year of service. When career average earnings formulas are examined, the accrual rates tend to be more generous. This is to compensate for lower career-average salary to which the formula applies. However, the difference in accrual rates above and below the integration breakpoint—one-half of one percent—is the same as in plans using final average earnings.

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[58] The social security taxable wage base is indexed to average wages in the economy. If there were no further growth in average wages, ultimately the maximum integration breakpoint would be $37,800--the maximum taxable wage base for 1984. One of the problems with a step-rate plan is that the breakpoint has to be continually updated to maintain the same retirement income distribution. Many plans still use a breakpoint of $4,800, which was the maximum taxable wage base in 1965.

TABLE A–4. PERCENT OF FULL-TIME PARTICIPANTS IN PRIVATE PENSION PLANS HAVING FINAL AVERAGE EARNINGS PENSION FORMULAS INTEGRATED WITH SOCIAL SECURITY TAX BASE, MEDIUM AND LARGE FIRMS, 1982

Formula percentage applied to final average earnings within social security tax base	Formula percentage applied to final average earnings exceeding social security tax base (based on 73 plans)											
	Total	Less than 1.00	1.00	1.01 to 1.24	1.25	1.26 to 1.49	1.50	1.51 to 1.74	1.75	1.76 to 1.99	2.00	Over 2.25
All participants:												
Total	100.0	0.3	6.2	0.5	0.9	10.4	45.0	20.5	7.5	3.4	3.1	2.3
Less than 0.50	0.4							0.4				
0.50	0.9					0.9	0.1					
0.51 to .99	15.4		6.2	0.5		0.3	3.6	4.6			0.1	
1.00	43.1				0.9		37.2	2.9			2.2	
1.01 to 1.24	20.0					9.2	3.3	6.7			0.8	
1.25	8.3						.7		7.5			
1.26 to 1.49	9.5							6.1		3.4		
2.00 and over	2.5	0.3										2.3

Source: U.S. Department of Labor, Bureau of Labor Statistics. Unpublished data.

The observations above on the benefit formulas found in integrated plans are confirmed by our analysis of the Hay-Huggins data base. This data base consists almost exclusively of plans for salaried employees. (Often larger companies have one plan covering salaried employees and another covering hourly wage employees.) The date base consists of 854 firms in 90 standard industrial classifications which group into the following primary industries.

[Number of participating companies]

Industry:	
Agriculture	4
Mining	24
Construction	8
Manufacturing	301
Transportation and utilities	97
Wholesale and retail trade	51
Finance, insurance and real estate	221
Services	148
Total	854

Following is a plan size distribution of the firms covered by the Hay-Huggins survey.

Number of participants in plan:	*Percent of companies*
Fewer than 250	18
250 to 999	11
1,000 to 4,999	38
5,000 to 19,999	21
20,000 and over	12

3. Early retirement reduction

As indicated on page 42, private pension plans usually reduce employees' accrued pension benefits, on average, by about four or five percent a year if they retire early. This reflects the longer payment period. The normal retirement benefit is either adjusted to reflect the life expectancy of the individual at the age that pension benefits begin (actuarial reduction), or reduced by a percentage for each year between actual retirement and normal retirement ages (arithmetic reduction).

The four to five percent average yearly retirement reduction was arrived at as follows: Table A-5 shows that about one-fifth of the participants in the BLS data base are in plans reducing the accrued benefit on an actuarial basis. This would amount to a reduction of about six to seven percent for each year. Another 30 percent are in plans where the percentage reduction varies by age. Some of these plans follow IRS rules permitting benefits to be reduced by 6.7 percent for each year between age 60 and normal retirement age, and by 3.3 percent for each year that retirement precedes age 60. This would average out to about five percent a year if the reduction were applied from age 65, or about four percent if applied from age 62. The remaining 46 percent are in plans providing a uniform percentage reduction for each year. About half of these participants (or 25 percent of all participants) are in plans reducing the benefit uniformly by five percent or less for each year actual retirement age precedes normal retirement.

TABLE A-5.—PRIVATE PENSION PLANS:[1] PERCENT OF PARTICIPANTS IN PLANS WITH EARLY RETIREMENT BY REDUCTION FACTOR FOR IMMEDIATE START OF PAYMENTS, MEDIUM AND LARGE FIRMS, 1982

Basis of reducing accrued benefit	All participants	Professional and administrative participants	Technical and clerical participants	Production participants
Total	100	100	100	100
Actuarial [2]	21	17	17	25
Arithmetic reduction for each year prior to normal retirement age	79	83	83	75
Uniform percentage	46	39	48	48
Less than 3.0	2	4	2	1
3.0	7	8	7	6
3.1 to 3.9	1	1	2	1
4.0	6	6	9	4
4.1 to 4.9	2	2	2	2
5.0	7	8	11	5
5.1 to 5.9	([3])	([3])	([3])	([3])
6.0	16	7	13	21
6.7	3	2	3	3
6.8 to 7.1	([3])	1	([3])	1
7.2	1	([3])	([3])	2
7.3 or more	1		([3])	1
Percentage varies by service	3	10	3	([3])
Percentage varies by age [4]	30	34	32	27
Data not available	([3])			([3])

[1] Excludes supplemental pension plans.

[2] Reduction schedule is related to actuarial assumptions of the life expectancy at age that pension payments begin.

[3] Less than 0.5 percent.

[4] The rate of reduction per year varies by age bracket, sometimes in approximation of an actuarial table. For example, benefits may be reduced by 6.7 percent for each year between age 60 and the plan's normal retirement age, and by 3.3 percent for each year retirement precedes age 60. Also includes some plans which reduce benefits arithmetically for each year immediately below normal retirement age and actuarially below a specified age, usually 55.

Note: Because of rounding, sums of individual items may not equal totals.

Source: Bureau of Labor Statistics.

The Hay-Huggins survey shows that 30 percent of the plans in its data base provide a full actuarial reduction for early retirement (this would amount to about a six to seven percent reduction a year). Two-thirds of the plans were found to use a rounded percent reduction per year. Some of these plans (162) used uniform percent reductions for each year, while the others (296) used a step-rate reduction above and below a certain age.

Table A-6 shows the percentage reduction per year before normal retirement age combined with early retirement eligibility for plans with uniform percentage reduction. Eighty-four percent of these plans permit early retirement between ages 55 and 59. Reductions of three, four, five, and six percent per year before normal retirement age are common. Over half of the plans providing uniform percent reductions (56 percent) reduce the full benefit by four percent or less.

TABLE A-6—UNIFORM PERCENTAGE REDUCTIONS FOR REDUCED EARLY RETIREMENT PENSIONS

Reduction (percent)	Ages			Total	
	45 to 50	55 to 59	60 to 64	Number	Percent
2.4 or less	1	4	2	7	4
3	4	34	1	39	24
3.29 to 3.33		1		1	1
3.59 to 3.6		14	1	15	9
4	1	27	1	29	18
4.2 to 4.8		2		2	1
5	1	26	4	31	19
5.4	1	2		3	2
6	1	22	3	26	16
6.5 to 6.66		3	2	5	3
6.7 or more		2	2	4	2
Total	9	137	16	162	
Percent	6	84	10		100

Source: Hay-Huggins.

A large number of plans in the Hay-Huggins data base (296) apply a step-rate reduction with one rate (a lower rate, often zero) applied above an age breakpoint (usually between age 60 and 62) and a higher reduction rate applied below the age breakpoint (spread evenly between three to six percent). Pension benefits are normally calculated based on payout at age 65.

The following two tables show the percent of the full pension benefit earned that would be received by someone retiring early at age 60 and at age 55. Over half (55 percent) of the plans in the Hay-Huggins data base provide over 80 percent of the full benefit to someone retiring at age 60; over half (59 percent) provide more than 55 percent of the full benefit at age 55.

TABLE A-7.—PERCENTAGE OF PENSION EARNED BUT RECEIVED FOR RETIREMENT AT AGE 60

Percentage	Industrial		Fin./Sec.		Total	
	Number	Percent	Number	Percent	Number	Percent
60 or less	4	1	3	1	7	1
60.01 to 65	11	3	7	3	18	3
65.01 to 70	75	22	51	25	126	23
70.01 to 75	22	6	16	8	38	7
75.01 to 80	37	10	25	12	62	11
80.01 to 85	60	17	25	12	85	15
85.01 to 90	50	14	30	15	80	14
90.01 to 95	50	14	26	13	76	14
Over 95	45	13	22	11	67	12
Total	354	100	205	100	559	100

Source: Hay-Huggins.

TABLE A-8.—PERCENTAGE OF PENSION EARNED BUT RECEIVED FOR RETIREMENT AT AGE 55

Percentage	Industrial		Fin./Svc.		Total	
	Number	Percent	Number	Percent	Number	Percent
40 or less	20	6	17	9	37	7
40.01 to 45	4	1	5	3	9	2
45.01 to 50	84	26	49	22	133	26
50.01 to 55	22	7	10	5	32	6
55.01 to 60	51	16	33	17	84	16
60.01 to 65	31	9	24	12	55	10
65.01 to 70	40	12	22	11	62	12
70.01 to 75	37	11	16	8	53	10
75.01 to 80	28	9	15	8	43	8
Over 80	11	3	8	5	19	3
Total	328	100	199	100	527	100

Source: Hay-Huggins.

4. Cost-of-living adjustments (COLAs)

The Hay-Huggins survey shows that nine percent of the plans in its data base contain a formal COLA. While 48 percent of the plans have made one time adjustments or ad hoc increases since 1975, 41 percent of the plans have made no adjustments since 1975. Only about one-quarter of the pensions in the North Carolina State University study presented in chapter 2 were frozen over the 1973–79 period. This difference may be explained in part by the lower proportion of collectively bargained plans in the Hay-Huggins data base. The North Carolina State University study showed that beneficiaries in nonunion plans had fewer total increases and were more likely to have received no increase during the sample period.

Of the 60 companies in the Hay-Huggins data base which provided COLAs by means of a formal plan provision, 63 percent are based on the CPI (usually capped at three or five percent), 30 percent are based on a fixed percentage (spread fairly evenly between two to five percent) and seven percent use some other method. For the 315 plans adjusting benefits one or more times since 1975, 42 percent made one adjustment, 33 percent made two adjustments and 25 percent made three adjustments.

Table A-9 shows a distribution of the total percent increase given through 1983 to pensioners who retired on January 1, 1975, as a result of a plan amendment or ad hoc increase.

TABLE A-9.—TOTAL INCREASE GIVEN THROUGH 1983 TO A PENSIONER WHO RETIRED ON JANUARY 1, 1975 AS A RESULT OF PLAN AMENDMENT OR AD HOC COLAs

Total percent increase	Number of companies	Percent of companies
5 or less	29	7
5.1 to 10	55	20
10.1 to 15	43	15
15.1 to 20	59	21
20.1 to 25	38	14
25.1 to 30	27	10
30.1 to 35	18	6
35.1 to 40	10	4
40.1 to 45	5	2
Over 45	4	1

Source: Hay-Huggins 1983 Noncash Compensation Survey.

5. Pre- and post-retirement survivor annuities

Tables A-10 and A-11 show the percent of full-time participants by provision for pre- and postretirement survivor annuity. Both of these tables are based on the BLS survey of employee benefits.

TABLE A-10.—PRIVATE PENSION PLANS: [1] PERCENT OF FULL-TIME PARTICIPANTS BY PROVISION FOR PRERETIREMENT SURVIVOR ANNUITY, MEDIUM AND LARGE FIRMS, 1982

Type of annuity for surviving spouse [2]	All participants	Professional and administrative participants	Technical and clerical participants	Production participants
Total	100	100	100	100
Preretirement survivor annuity provided	99	100	100	98
Equivalent of joint and survivor annuity [3]	74	73	69	78
Based on early retirement [4]	66	65	61	70
50 percent of employee pension	54	52	52	56
At employee cost [5]	21	20	17	24
Over 50 percent of employee pension	12	13	8	14
At employee cost [5]	1	(6)	(6)	1
Based on normal retirement [7]	8	8	9	8
At employee cost [5]	1	(6)	(6)	1
Portion of accrued employee benefit, reduced for early retirement	13	13	16	12
Other annuity [8]	11	13	14	8
Preretirement survivor annuity not provided [9]	1	(6)	(6)	2

[1] Excludes supplemental pension plans.

[2] Many plans offer an elective preretirement spouse option. If the elective provision was the only option, it was tabulated; if it was in combination with an automatic preretirement spouse option, only the automatic provision was tabulated.

[3] An annuity that provides income during the lifetime of both the retiree and the surviving spouse. The accrued pension will usually be actuarially reduced at retirement because of the longer length of time that payments are expected to be made. Upon the retiree's death, all or part of the reduced pension is continued.

[4] Survivor annuity is based on the benefit the employee would have received if early retirement had occurred on the date of death.

[5] Plan reduces the accrued employee pension benefit for each year survivor protection is in force.

[6] Less than 0.5 percent.

[7] Survivor annuity is based on the benefit the employee would have received if eligible for normal retirement on the date of death.

[8] Includes annuity based on a portion of accrued benefits unreduced for early retirement, or a flat dollar amount.

[9] A preretirement survivor annuity is required by ERISA only where plans allow the payment of retiree benefits prior to the plan's normal retirement age.

Note: Because of rounding, sums of individual items may not equal totals.

TABLE A-11.— PRIVATE PENSION PLANS:[1] PERCENT OF FULL-TIME PARTICIPANTS BY PROVISION FOR POSTRETIREMENT SURVIVOR ANNUITY, MEDIUM AND LARGE FIRMS, 1982

Type of annuity for surviving spouse	All participants	Professional and administrative participants	Technical and clerical participants	Production participants
Postretirement survivor annuity	100	100	100	99
Spouse's share of joint-and-survivor annuity only [2]	93	95	95	92
50 percent of retiree's pension	23	15	18	30
51–99 percent of retiree's pension	6	4	2	8
100 percent of retiree's pension	(3)	(3)	(3)	(3)
Alternative percentage at retiree's option	64	76	74	54
Spouses's share of joint-and-survivor annuity plus portion of retiree's pension	1	1	1	2
Portion of retiree's accrued pension only	5	4	5	6
Postretirement survivor annuity not provided [4]	(3)	(3)	(3)	1

[1] Excludes supplemental pension plans.

[2] An annuity that provides income during the lifetime of both the retiree and the surviving spouse. The accrued pension will usually be actuarially reduced at retirement because of the longer length of time that payments are expected to be made. ERISA requires that plans provide this annuity as an automatic form of pension payments. Employees must waive the spouse annuity in writing if they desire a pension during their lifetime only or another option offered by the plan, such as guarantee of payments for a specified period.

[3] Less than 0.5 percent.

[4] Includes participants in money purchase plans where the death benefit is in the form of a lump sum payment equal to the present value of the accrued benefit less payments already received.

Note: Because of rounding, sums of individuals items may not equal totals.

Source: Bureau of Labor Statistics.

F. DESCRIPTION OF CAPITAL ACCUMULATION PLANS OFFERED BY PRIVATE EMPLOYERS

The Hay-Huggins data base provides information on the incidence and characteristics of capital accumulation plans. Their 1983 Noncash Compensation Comparison shows that 61 percent of the companies in their data base with pension plans supplement it with one or more capital accumulation plans. The following table shows the prevalence of the various types of capital accumulation plans in 1983 compared to their previous survey results.

TABLE A-12.—PREVALENCE OF CAPITAL ACCUMULATION PLANS COMPARED WITH PREVIOUS SURVEY RESULTS

[In percent]

	1983	1981	1979
Matching thrift or stock purchase	43	43	37
Profit sharing/stock:			
Bonus plan (qualified)	20	19	23
Deferred only	65	70	64
Deferred and cash combined	35	30	36
ESOP or PAYSOP [1]	33	26	18
Discount stock purchase plan [1]	12	16	15

[1] Percentage based on stock companies.

Source: Hay-Huggins 1983 Noncash Compensation Survey.

Following is a description of some of the principal capital accumulation plans available to private sector workers.

1. Section 401(k) deferred compensation plans

Favorable tax incentives are available to private sector employees whose company adopts a so-called "401(k) plan." (These plans are also referred to as cash or deferred arrangements (CODA) or salary reduction agreements.) With the passage of the Revenue Act of 1978, Congress added section 401(k) to the Internal Revenue Code to permit employees the choice of receiving compensation currently (where it would be subject to tax) or defering as much as 25 percent of pretax compensation (up to $30,000) annually. Section 401(k) plans encourage retirement savings and they are the private sector counterpart to section 457 plans for public sector employees and section 403(b) tax-sheltered annuities for employees of educational institutions and certain tax-exempt organizations.

A 1984 survey by Buck Consultants, Inc., a major employee benefit consulting firm, showed that more than 73 percent of a sample of 424 major U.S. companies either have installed or are planning to install 401(k) deferred employee compensation plans. The firm concluded, "The results clearly indicate that 401(k) arrangements are becoming the dominant defined contribution plan in the United States."

Although social security and unemployment insurance taxes must be paid on the deferred compensation, Federal income tax is not imposed on the deferred wages—nor on the interest they earn—until they are paid out. And when the money is distributed, it qualifies for favorable tax treatment. If the amounts are paid out in a lump-sum distribution, employees can reduce their tax liability by using 10-year forward averaging, or they may roll over the lump sum into another qualified plan or into an Individual Retirement Account. Normally, persons are in a lower tax bracket when they retire, and if age 65 or older, receive an additional personal exemption.

Amounts contributed by employees (including earnings) must vest immediately. Any amounts contributed by the employer are subject to the plan's normal vesting rules. When employers make contributions, amounts frequently vest after five years of employee participation. It is common to offer employees a choice of investment vehicles for their accounts, such as a fixed income fund or an equity fund.

Employers frequently use an existing thrift plan as a means of providing a 401(k) arrangement. The plan must satisfy special IRS tests that specify the amount that may be deferred by higher paid employees in relation to the amount actually deferred by the lower paid. Participants are split between (a) the higher paid one-third and (b) the lower paid two-thirds

Amounts deferred may not be distributed to participants or beneficiaries earlier than upon retirement, death, disability, separation from service, hardship, or the attainment of age 59½. Hardship payouts cannot exceed the amount necessary to meet the immediate financial need created by the hardship and not reasonably available from other sources of the employee. Even if a participant cannot qualify for "hardship" treatment, he can borrow from his account without incurring tax liability on those amounts provided certain conditions common to borrowing from any tax-qualified plan are met: (1) the loan is repaid within five years (except for certain home loans), (2) the loan does not exceed the lesser of $50,000 or one-half the present value of the employee's vested account balance under the plan (or if higher, $10,000), and (3) it is adequately secured and bears a reasonable rate of interest.

2. Stock ownership plans

Over the last decade, Congress has provided various incentives for employers to offer employee stock ownership in their company. Special tax incentives were provided for employee stock ownership plans (ESOPS) with the passage of ERISA in 1974. Subsequent tax legislation changed the manner by which these plans are financed, but the concept remains the same. The following description of the evolution of ESOPs and TRASOPs is abstracted from a series of employee benefit pamphlets published by the Employee Benefit Research Institute.

(a) ESOP.—An Employee Stock Ownership Plan (ESOP) is an arrangement that not only enables an employee to acquire a stake in the future of the company but provides a tax-favored financing vehicle for the company. When a company sets up an ESOP it first creates a trust fund. The trust fund, backed by the company's credit, borrows money from outside lendors and then uses these funds to purchase company stock at fair market value. The stock is pledged as collateral for the loan. The company then makes yearly contributions to the trust fund which are used to pay off the loan. As the loan is paid off, shares of company stock are assigned to individual employee accounts. Shares are usually allocated to an employee's account on the basis of the proportion each employee's pay is of total payroll. The net effect of establishing an ESOP is that the company acquires new capital and makes tax-deductible contributions to the trust fund that are used to repay the loan, while the employees begin to acquire an ownership interest.

The amount that the company can contribute depends on the type of ESOP adopted. If it is a stock plan (i.e., similar to a profit-sharing plan except that contributions are made in company stock), the company contribution may not be more than 15 percent of payroll. If it is a combination stock bonus and money purchase plan (i.e., a defined contribution plan in which the company's contributions are mandatory and usually based on each participant's compenstion), an amount up to 25 percent of each participant's pay can be contributed.

The advantage of an ESOP to the employer is clear. As far as the employee is concerned, the success of an ESOP in the long run and its ultimate retirement income value depend on the performance of the company and the value of the company's stock.

(b) TRASOP.—In 1975 Congress reshaped and simplified the ESOP, but the concept did not change. Known as a TRASOP (standing for a Tax Reduction Act Stock Ownership Plan), it also provides employees with an ownership interest in the company. The TRASOP differs from an ESOP, however, in the method of paying for the stock.

A TRASOP is funded with money that the company would otherwise pay in taxes. It comes from Federal income tax credits that the company is allowed for qualified capital investments—generally in new plant, machinery and equipment. It works like this: Companies are generally allowed a 10 percent investment tax credit. If the company made a qualified investment of $1 million, it could claim a credit for that year of $100,000 (10 percent of $1 million). The company could claim an additional one percent investment tax credit (in this case $10,000) if the company uses the tax savings to fund a TRASOP. The TRASOP, in turn, uses the additional $10,000 tax credit to buy company stock for each participant.

Starting in 1976, another ½ of one percent investment credit became available to companies whose employees contributed a matching amount of cash to the plan. In this same example, the company could claim an additional $5,000 in tax savings—provided the employees contributed the same amount. Both the company contribution and the participants' contributions are used to buy company stock.

Since TRASOP contributions are related directly to a company's qualified capital investments, the more the company invests, the larger the investment tax credit and TRASOP contribution. The extra tax credits (both the one percent and the ½ of one percent) expired on December 31, 1983).

(c) PAYSOPs.—The payroll-based employee stock ownership plan (PAYSOP) replaced the investment-based TRASOPs beginning in 1984. PAYSOPs were created by the Economic Recovery Tax Act of 1981. PAYSOPs were adopted by Congress with the view that a larger number of employers would find them attractive and feasible—particularly companies interested in improving their employee benefits package at little or no cost. A company generally receives a tax credit for its contributions to a PAYSOP. This tax credit reduces dollar for dollar the company's Federal income tax liability. Like other tax-qualified plans, a PAYSOP must satisfy IRS rules designed to ensure that it does not discriminate in favor of higher paid employees.

Under a PAYSOP, the maximum tax credit is: (1) 0.50 percent of plan participants' payroll for calendar years 1983–84; (2) 0.75 percent of plan participant's payroll for calendar years 1985–87. For example, in 1984, a company with a payroll of $200 million could claim a tax credit of $1 million (0.50 percent of $200 million). The money contributed to the trust fund is used to buy company stock. Stock is then allocated to the participants relative to their proportion of total compensation. Only compensation up to $100,000 is taken into consideration in the allocation formula. Employees do not pay income taxes on the amounts in their accounts. As with other deferred compensation plans, the employee will have taxable income when the stock or cash is distributed.

The premier advantage of PAYSOPs to an employer is that like TRASOPs they are, or at least can be, a no cost employee benefit. Since PAYSOP contributions are creditable against an employer's tax liability, the actual cost of an employer's contributions to a PAYSOP is borne by the U.S. Treasury—not the employer. The employer may incur costs in connection with establishing and administering the plan; however, such costs can be charged against the plan within certain limits. For many firms, particularly those with limited capital investment, PAYSOPs are more valuable than their investment-based predecessor, the TRASOP.

3. Thrift plans

A thrift plan (sometimes referred to as a savings plan) is an employee benefit plan to which participants make periodic deposits. Thrift plans are very popular among employees because their contributions are matched, wholly or in part, by the employer. Funds are invested with each participant having an account in the plan. Many thrift plan provisions, like those of other benefit plans, are subject to requirements of ERISA and the Internal Revenue Code.

Employee contributions to a thrift plan are made from *after-tax* income, normally through payroll deductions. Since employee contributions to 401(k) plans are made with *pre-tax* dollars, many companies are converting their thrift plans to 401(k) arrangements so that employees may take advantage of this added tax benefit.

If the thrift plan is qualified with IRS, the employer's contributions are deductible for Federal tax purposes. The employee's share of these employer matching contributions and any investment earnings or gains are tax deferred until made available to the participant. The full value of a participant's account is generally paid upon retirement, death, or disability. Part or all of the account (usually depending on years of participation) is paid on termination of employment. The thrift plan is frequently used with a conventional pension plan enabling the employee to increase his resources at retirement.

Forty-three percent of the companies in the Hay-Huggins survey have at least a thrift plan. In most cases (59 percent), the thrift plan is available to all employees. In some cases, eligibility is limited to just salaried employees (24 percent) or nonunion employees (15 percent). Participation in a thrift plan is voluntary. Over 50 percent of eligible employees participate in the vast majority of plans. Most plans require a certain period of service before employees are eligible to participate. The period of service is one year or less in 93 percent of the plans.

Employees participating in a thrift plan must usually contribute at least one or two percent of compensation. Normally the plan will set a maximum employee contribution that will be fully or partly matched by the employer. A six percent employee contribution is by far the most prevalent maximum. Some plans permit additional unmatched employee contributions. In most cases, the employer provides a partial matching contribution of 50 percent of what the employee contributes. One out of five plans provide 100 percent matching.

About three-quarters of the plans give the employee a choice among investment funds for their thrift accounts. Of these, 47 percent permit selection for both employee and employer contributions. Employees are usually able to change investment options at least annually. The employer retains the investment responsibility for at least part of the contributions in about two-thirds of the thrift plans. The majority of the plans require that all employer contributions be in company stock. Only 10 percent require investment of a portion of employee contributions in company stock.

Usually a minimal period of service of participation is required before employer contributions vest. Many plans provide graded vesting with partial vesting taking place in less than a year. Full vesting is usually attained after three years in plans using "class year" vesting,[59] five years in plans basing vesting on the number of years of participation in the thrift plan, and as many as five or ten years when vesting is based on total years of service with the employer. Almost all thrift plans provide full vesting if the employee becomes disabled.

Ninety-seven percent of companies with thrift plans permit withdrawals of employee contributions. To join a thrift plan, most plans require a waiting period of from three months to two years; six months (46 percent) or 12 months (36 percent) are the most common restrictions. Withdrawals of vested employer contributions is allowed by 77 percent of the plans. Thirty-two percent of the plans limit this option to cases of financial need. Loans from the employee's account, however, can be secured under only 25 plans in the Hay-Huggins data base.

G. PRIVATE SECTOR DISABILITY PRACTICES

Most employees in the private sector have protection against disability through pension plans or other arrangements provided by or with the employer.[60] Private sector practices in regard to disability are not uniform, however.

1. Types of disability arrangement

In theory a well-designed system provides a variety of arrangements, in both the short- and long-term, to replace income lost because of non-work-related disabilities.[61] These arrangements include paid sick leave, sickness and accident insurance, and temporary disability insurance; and also include longer term arrangements, such as disability pensions and long-term disability (LTD) insurance, which are often coordinated with social security disability benefits. Because disability can progress from a short-term inability to work to a longer term, perhaps permanent, disability, these various arrangements should be regarded as a continuum from the first day of disability to retirement age. Ideally, there are no gaps or overlaps.

a. Short-term arrangements.

(1) Paid sick leave.—Sick leave is more prevalent among white-collar than blue-collar employees. Provisions vary widely. They generally provide full earnings replacement for a specified number of days per year based on length of service. An alternative grants a specified number of days of sick leave per disability, at full or partial pay, that is sometimes varied by length of service. In both cases, replacement income during disability varies, usually from full to half pay. Provisions may also be made to accumulate sick leave from year to year. Sick leave plans provide for less than six

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[59] Under "class year" vesting, each year's contribution is vested separately.

[60] In their 1982 survey of employee benefits in medium and large firms, the Bureau of Labor Statistics found that 89 percent of full-time participants were covered by disability retirement benefits. Hay-Huggins in their 1983 noncash compensation comparison found that 93 percent of participants provided long-term disability coverage.

[61] Work-caused disability is compensated through workers' compensation systems not discussed in this anlaysis. However, the availability and terms of differing workers' compensation systems can influence the perceived need for non-work-related disability income replacement arrangements and their structure.

months' earnings replacement; for a worker with 10 years' service, the average is one to three months.

(2) Accident and sickness insurance.—Accident and sickness insurance is a common private sector short-term disability arrangement, particularly among blue-collar employees. Most are employer-financed, although about 20 percent require some employee contribution.

Accident and sickness insurance plans provide partial pay replacement (usually 50–70 percent of earnings) for short-term disability—generally for up to six months. However, benefits are capped at a weekly maximum ($150 per week is about average) and there is usually a short (one-week) waiting period before benefits begin. Accident and sickness plans are often combined with sick leave and take over when sick leave is exhausted.

(3) Temporary disability insurance.—This type of short-term disability protection is, in effect, a type of accident and sickness insurance. However, it is mandatory for employees in several States and for railroad employees covered by the Railroad Retirement Act, and is likely to be at least partially employee-financed.

b. Long-term arrangements.—Long-term disability arrangements, generally for disabilities lasting or expected to last longer than 6 to 12 months, are of three types: LTD insurance plans, deferred disability retirement pensions, and immediate disability retirement pensions.

(1) LTD insurance plans.—LTD plans are contracts with insurance carriers that provide disability benefits for employees and are provided separately from retirement plans. Benefits generally become available when short-term disability benefits have expired. LTD insurance benefits are paid as long as the disability continues or until the individual reaches retirement age when he is classified and is paid as a retiree under the pension plan.

Most LTDs provide for 60 percent or more of predisability earnings for the length of disability (or until retirement). LTD benefits are customarily offset against other sources of disability income, such as social security disability benefits, workers' compensation, and pension benefits.

(2) Disability retirement arrangements.—There are two basic types of disability retirement arrangements: deferred retirement (often linked with LTD plans), where the pension is not paid until early or normal retirement age; and immediate retirement, where the pension is available upon disability. The benefits are usually integrated with social security.

2. Prevailing practices

The types of long-term disability arrangements used in the private sector tend to vary according to the composition of the covered work force. Workers participating in negotiated or collectively bargained plans usually are protected by disability retirement provisions of the pension plan, whereas white-collar or salaried workers almost universally are protected by LTD insurance. This conclusion is borne out by the different results given by surveys when they focus on different categories of workers.

According to the Bureau of Labor Statistics (BLS) employee benefit plan survey, two-thirds of the plans with disability provisions offer "immediate" retirement benefits (typically after a designated waiting period in which temporary disability arrangements apply) if the disabling condition satisfies the plan's definition of total disability. Usually 10 years or more of service is required. When the employer provides alternative sources of disability income, such as LTD insurance, the retirement benefit is usually deferred until the employee reaches retirement age.

Hay-Huggins data present a different picture. Of the 854 firms participating in their survey, 93 percent offer LTD coverage. One-third of the 781 firms in their survey that have defined benefit pension plans provide disability pension benefits. (Where both LTD and disability pensions are provided, the pension is usually subtracted from the LTD.) The difference in BLS and Hay-Huggins data is due mostly to the different types of firms surveyed. BLS surveyed a cross section of plans, many of which are negotiated through collective bargaining and tend to provide disability benefits out of the pension plan. Hay-Huggins, on the other hand, surveyed only plans for salaried workers, the vast majority of which use LTD insurance to provide disability protection. The Federal work force is comprised mostly of salaried workers, so the Hay-Huggins data may be considered to be more appropriate in comparing treatment of analogous workers in the private sector.

According to the BLS survey, over four-fifths of "production" (i.e., blue-collar) workers with disability retirement coverage are in pension plans that provide immediate benefits. White-collar workers with disability benefits in their retirement plans, however, are equally divided between plans with immediate and deferred benefits. Most of the plans providing disability retirement use a formula that calculates benefits as if the disability occurred at the normal retirement age, with no reduction for early retirement. However, 15 percent do reduce benefits for early retirement.

The BLS survey shows that workers with deferred retirement benefits are usually provided with LTD benefits ranging from 50 to 60 percent of earnings or more at the time of disability—more than generally provided by pension plans with immediate disability retirement. The BLS survey showed that most deferred retirement benefits were greater than immediate pensions, primarily because the time during which long-term disability benefits were paid was typically added to an employee's length of service for computation of pension benefits. Plans do not usually modify the benefits determined at the time of disability retirement. BLS data show that a small minority (seven percent) of the immediate retirement disability plans to recalculate benefits at age 65, mainly either to increase compensation for persons whose benefits were reduced for age or to credit service for the time of disability. Because the deferred pension is calculated on pay earned while working (generally, plans do not index these earnings), it may have declined significantly in real value by the time the worker reaches retirement age.

Hay-Huggins data show that 60 percent of LTD plans pay 60 percent of pay, with 21 percent paying less (only two percent pay less than 50 percent) and 19 percent paying more. Some LTD plans have step-rate formulas, the most common of which is 60 percent of monthly income up to $5,000 and 40 percent of the excess. Most LTD plans (82 percent) have maximum levels on benefits, typically

$3,000–$5,000 per month. Almost half (47 percent) also have minimum limits, usually $50 a month after the social security offset.

Most pension plans emphasize service rather than age in defining insured status for disability pensions. This is parallel to the social security approach, which has only a service requirement. The average length of service required, according to BLS, is 11 years, which is more restrictive than the CSRS requirement of five years' total service, and somewhat more restrictive than social security's insured status requirements. LTD coverage is available to fulltime employees as of the date of hire or after a short waiting period. Waiting periods vary, but in almost all LTD plans are no more than one year, and commonly are one to three months.

As a rule, the definition of disability is designed to make benefits available only to workers whose incapacities require them to withdraw from the labor force. Most plans define disability at least as restrictively as social security. One-fourth of disability retirement plans use the more liberal "occupational" definition of disability, i.e., as occurring when an employee is unable to continue in his or her job with the company. Individuals meeting this criterion would not necessarily meet the social security definition of disability. Plans often switch to a stricter definition of disability, usually social security's, after a certain period (two years is fairly typical).

Benefits under private pension plans are often coordinated with social security disability benefits through integration provisions. Internal Revenue Service (IRS) integration rules limit the offset to 64 percent of the worker's social security benefit. The offset usually is structured to be consistent with the offset used in computing retirement benefits, and thus a 50 percent offset is common. Hay-Huggins data show that 42 percent of the plans in their survey which have disability pension benefits offset the worker's social security disability benefit (PIA); seven percent offset total family social security benefits. LTD insurance benefits, however, are not subject to limits on integration with social security and can provide for 100 percent offset of benefits. According to Hay-Huggins, 81 percent of LTD plans offset social security dollar for dollar. Of the plans that offset social security dollar for dollar, 63 percent offset the PIA (96 percent offset 100 percent of the PIA, and four percent offset 50 percent of the PIA) and 37 percent offset family social security benefits (94 percent offset 100 percent of the family social security amount, and six percent offset 50 percent of the family social security benefit).

In calculating a disability retirement benefit, pension plans often prorate the amount of the social security benefit to be offset by the proportion of the worker's career spent under the pension plan. This treatment parallels that of the retirement benefit computation. LTD insurance plans offset the social security benefit with no proration.

Disability retirement and LTD benefits typically are payable after an initial waiting period, usually five or six months. The waiting period, like the five months imposed by social security, is designed to assure the validity of a claim before initiating payment of long-term benefits. However, most employees are covered during all or part of the waiting period by short- and intermediate-term arrangements, i.e., sick leave, sickness and accident insurance, or temporary disability insurance.

Virtually no pension or LTD plans provide for automatic adjustments for inflation, although many retirement plans provide ad hoc adjustments. Because it is fully indexed to increases in the Consumer Price Index, social security is relied upon to help protect against rises in the cost-of-living. Pension and most LTD insurance plans "freeze" the offset of social security benefits against the initial benefit and do not make subsequent adjustments when social security COLAs are made.

H. SURVIVOR BENEFITS [62]

1. Introduction

The ERISA set minimum standards that private defined benefit pension plans must meet for the provision of survivor benefits to the spouse survivors of workers who die before retirement and for the survivors of retirees. These requirements pertain only to retirement plans that provide benefits in the form of an annuity. While ERISA does not apply directly to State pension plans, most States have postretirement survivor provisions similar to those required by ERISA.

Because comparisons are frequently made between pension benefits available under private and State plans with those provided under the Federal system, this section describes survivor benefits common in private plans.

2. Preretirement death

ERISA requires that private pensions make available a survivor annuity plan for widows and widowers of employees who die before retirement if the employee was vested with a nonforfeitable benefit and even if he or she no longer worked for that employer.[63] The annuity paid under this plan to the spouse survivor of a deceased employee is computed as if the worker had retired just before death and had elected a 50 percent joint-and-survivor annuity. This coverage may be waived only with spouse consent. However, to avoid "disproportionate" usage by employees with terminal illnesses, plans formerly were permitted to require that this spouse survivor coverage be elected no later than two years before it would be payable, and benefits need not be paid if the worker dies of nonaccidental causes within two years of the election. The Retirement Equity Act of 1984 eliminates this provision.

The cost of this survivor protection for persons who continue working may be absorbed by the pension plan or charged against the employee's pension when the worker decides to retire. According to a 1981 survey of 1,505 large and medium-size firms carried out by BLS, about three-fourths of the pension plans surveyed did not require any reduction in the employee's pension at retirement, while one-fourth reduced the pension by about 0.6 percent for each year the survivor protection was in effect before retirement. However, if the worker dies before retiring, the annuity to the survivor usually is calculated using the plan's early retirement formula to determine the accrued annuity at the time of death, then reducing that amount as if a joint-and-survivor benefit had been elected. The survivor's annuity can be no less than 50 percent of this reducted amount. About 25 percent of the plans surveyed by BLS did not reduce benefits according to a joint-and-survivor formula, although there was a variety of methods for computing the amount of the annuity accrued at death. ERISA also prohibits discontinuation of this joint-and-survivor annuity if the survivor remarries.

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[62] For a more detailed description of survivor benefits under private plans, see Donald Bell and Amy Graham, Surviving Spouse's Benefits in Private Pension Plans, Monthly Labor Review, Apr. 1984.

[63] The Retirement Equity Act of 1984.

While ERISA previously required that survivor coverage be available at early retirement age (usually age 55), there was no requirement for private pension plans to pay benefits to the survivor of a worker who died *before* reaching early retirement age. Private employers relied on their group life insurance in cases of early death. Typically, group life insurance is provided at little or no cost to the employee and pays a sum equal to one to three times the employee's annual salary at the time of death. However, the Retirement Equity Act of 1984 now requires that survivor benefits be paid to the spouse of a vested participant, regardless of when death occurs, although the benefit need not be paid until the month in which the worker would have reached early retirement age.

In addition to life insurance, there is a wide variety of ways in which employers voluntarily provide survivor benefits beyond those required by ERISA. Among the firms surveyed by the Bankers Trust Company in 1980, 80 percent of the conventional pension plans (those that are not collectively bargained) provided some kind of automatic preretirement death benefit beyond the ERISA required minimum. For example, these benefits are usually available when the deceased had not reached early retirement age or if the deceased was early retirement age but had waived the survivor coverage. These benefits are available at no cost to the employee if he or she lives to retirement, although they are automatically paid if the worker dies without ERISA survivor coverage. Nevertheless, most firms offering automatic preretirement survivor benefits have certain age and/or service requirements that must be met for the benefits to be payable. Most plans specify only a service requirement, while 20 percent of the surveyed plans paid such benefits if the deceased employee was at least age 55 and had 10 years of service.

The Bankers Trust survey noted that there has been a trend over the past several years to provide these automatic preretirement death benefits in the form of an annuity payable for life or until remarriage, although there has been a recent decline in the number of plans that discontinue benefits at remarriage. The benefits may also be paid as a one-time, lump sum, or they may be paid over a five or 10 year period. The allowable beneficiary is usually the spouse only, although a few plans also pay benefits to children.

Social security benefits are also available to widows and widowers of any age if the employee had worked at least 18 months in social security covered employment at the time of death and if there are children under the age of 16 from that marriage. In addition, social security benefits are payable to children under age 18 of deceased, covered workers (age 19 if a full-time student in secondary school). Social security benefits, however, are subject to an earnings test.

3. Postretirement death

At the time of retirement, ERISA requires that married workers participating in defined benefit plans provide a survivor annuity (unless another election is made) in the form of a 50 percent joint-and-survivor annuity. This plan allows an actuarial reduction in the annuity to the retiree to pay for the continuation of an annuity to his or her surviving spouse equal to 50 percent of the reduced annuity paid to the retiree. Retiring workers may reject this arrangement; they may choose a survivor annuity greater than 50 percent and accept a larger actuarial reduction to cover the cost; or they may be given the choice of providing less than 50 percent.

While ERISA requires that the 50 percent joint-and-survivor option be *offered* to retiring workers, they are not required to elect that plan. However, the choice not to elect it must be made in writing, with spouse consent, and, if it is not, it will automatically go into effect upon retirement.[63a] Most private employers provide a choice of alternative postretirement survivor options. Usually, the alternative options are variations of the joint-and-survivor lifetime annuity, often with the retiree having a choice of the percentage of the actuarially reduced annuity that will be paid as a survivor annuity. The most common practice among State pension plans is to allow a choice of 25, 50, 75, or 100 percent joint-and-survivor plan.

Joint-and-survivor annuities are usually financed entirely by an actuarial reduction in the pension of the retiree, and therefore, they are provided at no cost to the pension plan. Occasionally, when a small survivor benefit is elected, such as a 25 percent joint-and-survivor annuity, there is no reduction to the annuity of the retiree, and the small cost is absorbed by the plan.

Another approach to financing survivor benefits is an arithmetic reduction in the retiree's annuity. However, this method is used in only eight percent of the plans surveyed by BLS. While an arithmetic reduction usually is smaller than an actuarial reduction, it may be coupled with an additional reduction to account for any age difference between the retiree and the named survivor. For couples of the same age, an arithmetic reduction might not cover the full cost of the survivor benefit, and therefore there is some employer subsidization of that benefit. For example, a basic arithmetic reduction of 10 percent might be made to the retiree's annuity to provide a 50 percent joint-and-survivor annuity, but an additional 0.5 percent reduction would be made for each year the spouse is younger than the retiree.

According to the BLS data, about one-fifth of the surveyed plans offered "death benefit" plans that could be chosen at the time of retirement instead of a 50 percent joint-and-survivor plan. These death benefits might be a small, lump sum to be paid to the survivor upon the death of the retiree with or without some kind of survivor pension, or payments may be specified for "a period certain"

[63a] The Retirement Equity Act of 1984 provides that an election to waive a survivor benefit is not effective unless it is in writing and is signed by the participant and the participant's spouse.

(generally five to 10 years). In total, "period certain" payments equal the present value of the full lifetime annuity for which the retiree is eligible. The number of monthly pension payments the retiree receives after retirement is subtracted from the specified number of total payments at the time of the retiree's death, and the survivor then receives the payments for the remaining period of time. Therefore, if the retiree lives for the full "period certain," no survivor benefits are payable. Because the amount of the payments are actuarially determined, this kind of retirement arrangement is provided at no cost to the pension plan.

IV. TECHNICAL AND BACKGROUND INFORMATION ON STATE AND LOCAL GOVERNMENT PLANS

A. COVERAGE AND DATA

The 1982 Census of Governments, carried out by the Bureau of the Census, found 2,559 retirement systems administered and funded by State and local units of the government.[64] These systems cover 11.6 million State and local employees, including employees covered by special retirement systems, such as police, firefighters, teachers and other school employees. Some jurisdictions also maintain separate systems for judges, elected officials and utility system employees. Table A-13 shows the distribution of State and local retirement systems by coverage class, number of systems and membership in 1982.

TABLE A-13.—STATE AND LOCAL EMPLOYEES RETIREMENT SYSTEMS, 1982

Coverage class	Number of systems	Membership (in millions)
U.S. total	2,559	11.607
General coverage, State-administered	62	6.445
General coverage, locally-administered	491	.921
Limited coverage, State-administered	128	3.695
School employees	18	1.784
Teachers only	18	1.551
Police only	20	.038
Firemen only	8	.037
Police and Fire combined	7	.068
Other	57	.218
Limited coverage, locally-administered	1,878	.544

Source: U.S. Bureau of the Census. Employee Retirement Systems of State and Local Governments, 1982 Census of Governments, vol. 6, no. 1.

As of 1982 a total of 6.5 million general service State employees participated in a State-administered pension plan. Of this total, 5.08 million persons were enrolled in a currently open system for general service employees. In States that have restructured their systems, some current workers participate in plans that are now closed to new employees. Workers still enrolled in these old plans and the characteristics of such plans are not included in the data in this chapter. The States that have closed systems covering some portion of their current workforce include New York, California, Maryland, Connecticut and Vermont.[65]

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[64] This excludes many small systems that are administered under a contract with a private firm and pernsions provided to individuals by direct appropriations. The Pension Task Force Report on Public Employee Retirement Systems, of the House Committee on Education and Labor estimated that there were over 6,000 plans if these smaller systems are included. Included are "old" State plans that are no longer available to new employees.

We confined our analysis to these Statewide general service plans for several reasons. General service employees most closely resemble the workforce covered by the basic civil service retirement system. A separate analysis would be required for each special service category or "closed system"—such as police or elected officials. This is outside the scope of this report.

The data in this section are from the 1982 edition of a biennial survey of State retirement systems carried out by the National Association of State Retirement Administrators (NASRA). The Wyatt Company also has published a 1981 survey of Public Employee Retirement Systems which covers 24 State systems, 24 teacher systems, 24 police and firefighter systems and 24 municipal and county systems. In some instances where the NASRA data were not clear or complete, the Wyatt data were used. However, the NASRA report is the most recent and comprehensive source of information on State systems.

Retirement systems administered by local units of government are discussed in this appendix to a very limited extent, mainly because there is little current information available on these plans. The Wyatt survey includes 24 municipal and county systems which will be reviewed, but it must be cautioned that this is not a large enough sample to fully represent this category of retirement plans.

B. LACK OF INTEGRATION WITH SOCIAL SECURITY

While there are probably numerous reasons for the continued popularity of add-on rather than integrated plans for State pension systems, several general observations can be made. As was noted earlier, State pension systems usually predated the option for social security coverage of State employees. When social security became available, an add-on design was the simplest way to administer the two programs and did not require any redesign of the existing State plan. In the 1950's, social security taxes and benefits were relatively low and therefore social security was not perceived as a significant part of State retirement plans. Also, States that developed plans subsequent to the 1950 Social Security Amendments would normally look to the older State systems for ideas on pension plan features.

Another reason that States continue to use add-on plans may lie in the basic purpose of integrated plans. Integrated plans "even out" the tilt in the social security benefit formula that provides higher replacement rates to low wage workers. This means that the pension benefit itself favors higher-paid employees. There may be reluctance on the part of State and local governments to provide relatively bigger pensions to higher-paid workers. Even if it is argued that the final result of an integrated pension and social security benefit is equitable to all employees, the State would be faced with providing benefits favoring higher-paid employees while the social security system would provide the major share of retirement income for lower-paid State workers.

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[65] In these States many current employees are still covered under a closed system.

Finally, in any decision to modify its basic pension system, States must face the reaction of the employees participating in the system. The fundamental differences in philosophy of add-on and integrated plans makes it inevitable that some employees would "gain" while others would "lose" in a switch between plan types (assuming constant cost of the system). For this reason, those States that have adopted integrated formulas generally make the new plan optional for current employees covered under the old plan, and mandatory only for newly-hired workers.

C. DETAILED INFORMATION ON VESTING, AGE AND SERVICE REQUIREMENTS, EMPLOYEE CONTRIBUTIONS, DISABILITY, AND CAPITAL ACCUMULATION PLANS

1. Vesting

It has been argued that different work force management goals are served by vesting periods of different lengths, with long vesting periods tending to discourage turnover (and reduce employer costs) and to provide an incentive for employees to remain with one employer for long periods of time. An example of a long vesting requirement is the military, which requires 20 years of service before any retirement benefits are payable. However, employees may then retire and draw an immediate pension. Most private employers adopted the ERISA 10-year vesting schedule. In the Federal civil service, employees are vested after five years.

Table A-14 shows the distribution of vesting periods by State and proportion of State employees. The most common period for vesting in a State retirement system is 10 years. Thirty-eight percent of the States, employing nearly 40 percent of covered State workers, have 10-year vesting. However, 39 percent of covered State employees, representing 28 percent of the States, are in systems with five-year vesting.

Most States have what is known as "cliff vesting;" this means that workers become 100 percent vested when they have completed the specified service period. Three States have an incremental vesting schedule according to which workers acquire an increasing proportion of the full vested benefit over time, a practice more commonly found in private plans.

Five States waive the normal vesting period and service requirement when the worker reaches a certain age, thus ensuring benefits to short-term, older workers. The footnote on table A-14 lists the ages at which such a waiver is granted in these States.

TABLE A-14.—STATEWIDE SYSTEMS: YEARS OF SERVICE FOR VESTING

Vesting period	Number of States	Percent of States	Percent of employees
Immediate	1	2.0	6.2
4 years	2	4.0	5.2
5 years	14	28.0	39.0

TABLE A-14.—STATEWIDE SYSTEMS: YEARS OF SERVICE FOR VESTING—Continued

Vesting period	Number of States	Percent of States	Percent of employees
8 years	1	2.0	1.6
10 years	19	38.0	39.7
Other [1]	13	26.0	8.3

[1] (1) Ten years, last 5 must be consecutive. (2) Four years or age 55. (3) Five years prior to retirement or normal retirement age. (4) Phased-in over 10 years (2). (5) Ten years or 1 year if age 65. (6) Five years partial; 9.2 years full. (7) Ten years or age 60. (8) Ten years or age 62. (9) A contribution in each of 5 years, or termination of employment within 5 years of earliest retirement age. (10) Five, with 3 contributing. (11) Data not available for South Carolina or Louisiana.

Source: National Association of State Administrators.

2. Employee contributions

Table A-15 shows the percentage of gross salary that State employees are required to pay into their State retirement systems. Date are shown separately for States in which general service employees are covered under social security and States in which those workers are not covered. Seven States, employing 12.4 percent of State workers, do not participate in the Social Security System. In States participating in social security, workers pay 5.4 (1984) percent of their salary into social security and they pay contributions required by their State plan.

Ten percent of the States, employing 12 percent of State workers, have non-contributory State pension systems, and all of these States participate in social security. Six States require a relatively high contribution—between 7.1 and 9.0 percent—and nearly two-thirds of those employees work in States covered by social security.

At the lower end of the contribution rate scale, 27.3 percent of State workers are employed in States requiring a contribution into the State plan of zero to 4.0 percent. Altogether, two-thirds of all State general service employees participate in State plans that require employee contributions equal to or less than the seven percent currently required by the Federal Civil Service Retirement System. (Most of these employees do, however, pay the additional 5.4 percent to social security excluding Medicare contribution). Therefore the effective total contribution rate for most State employees is above that for Federal workers.

As indicated in table A-15, six states have variable contribution rates for the State system. In four of these States the purpose of the variable rate appears to have been to prevent high double contributions in States also providing social security coverage. Two of the States have not updated their system for many years to account for increases in the social security wage base.

TABLE A-15.—STATEWIDE SYSTEMS: EMPLOYEE CONTRIBUTION RATES

State plan employee contribution rate	States with social security		States without social security		Percent of employees in States—	
	Number of States	Percent of States	Number of States	Percent of States	With social security	Without social security
Noncontributory	5	10.0	0	0	12.0	0
3 percent or less	3	6.0	0	0	6.5	0
3.1 to 4.0	6	12.0	0	0	8.8	0

TABLE A-15.—STATEWIDE SYSTEMS: EMPLOYEE CONTRIBUTION RATES—Continued

State plan employee contribution rate	States with social security		States without social security		Percent of employees in States—	
	Number of States	Percent of States	Number of States	Percent of States	With social security	Without social security
4.1 to 5.0	10	20.0	1	2.0	21.2	0.4
5.1 to 6.0	8	16.0	0	0	15.6	0
6.1 to 7.0	2	4.0	3	6.0	2.5	4.1
7.1 to 8.0	2	4.0	2	4.0	11.3	2.7
8.1 to 9.0	1	2.0	1	2.0	1.3	5.2
Mixed rates [1]	6	12.0	0	0	8.4	0
Total	43	86.0	7	14.0	87.6	12.4

[1] Delaware: 3% of pay over 6,000 plus 2% over social security wage base. Georgia: 3% on first $4,200; 5% on excess. New Hampshire: 4.6% up to social security wage base, 9.2% on excess. New Jersey: Based on age at enrollment. Oregon: 4.0% to 6.0% based on salary. South Carolina: 4.0% on first $4,800; 6.0% on excess.

Source: National Association of State Retirement Administrators.

3. Employer pickup plans

Employer pickup plans are a method through which employee contributions to a pension plan are made with pre-tax income rather than post-tax income. An employee's contribution to a pension plan is usually based on gross salary, as is the Federal tax liability (adjusted, for deductions and credits). The example below illustrates the impact on take-home pay.

Gross income	$30,000
Adjustments (20% of gross income)	−6,000
Taxable income	24,000
Federal tax (assume 30% tax)	−7,200
Post-tax income	16,800
Employee contribution to pension (5% of gross income)	−1,500
Take-home pay	15,300

Under an employer pickup plan, gross salary is effectively reduced, *for tax purposes,* by the amount of the pension contribution. In effect, the employer makes the employee's contribution so that the employee never actually "receives" that income. It is not considered part of the gross income. The following example illustrates the effect of the "pickup" on take-home pay.

Pre-pickup gross income	$30,000
Amount of pickup (5% of $30,000)	−1,500
Gross income	28,500
Adjustments (20% of gross income)	−5,700
Taxable income	22,800
Tax (assume 30% tax bracket)	−6,840
Take home pay	15,960

In this example, the employer pickup has increased the employee's take-home pay by $660 ($15,960–$15,300).

Section 414(h)(2) of the Internal Revenue Code provides for employer pickup of normal employee contributions to a pension plan. According to the New York State study, the IRS guidelines for these plans are as follows:

a. The governmental pension plan must be a tax-qualified or qualifiable plan (Section 401(a) of the Code) and its trust exempt from Federal income tax under Section 501(a).

b. The employer must specify that the contributions, although designated as employee contributions, are being paid by the employer in lieu of contributions by the employee.

c. The employee must not be given the option of choosing to receive the contributed amounts directly instead of having them paid by the employer to the pension fund.

Information on the availability of employer pickup plans is scanty. Three States, Illinois, Kentucky and Mississippi, reported having employer pickup plans on the 1982 NASRA survey of State retirement plans. However, the survey did not request information specifically about the availability of these plans, and therefore it is likely that other States offer employer pickups.

Under an increased take home plan (ITHP), the employer pays a portion of the employee's pension fund contribution much as is done under "employer pickup plans." However, since the ITHP is not enacted specifically under section 404(h) of the Internal Revenue Code, the employee's gross salary is not reduced for Federal income tax purposes. Under ITHP the employee's gross salary and Federal tax liability are not changed, but his take-home pay is increased because the employer absorbs some portion of the employee's contribution. While employer pickup plans impose essentially no cost on the employer, ITHP increases the cost by the amount of the reductions in employee contributions. New York has ITHP dating from 1960 for employees not covered by the Tier III Plan (non-contributory). It is not known if other States maintain ITHPs.

4. *Retirement with full benefits; retirement with reduced benefits; age and service requirements*

Age and service requirements for full and reduced pension benefits used by the different States vary. Figures A-1 through A-8 show the age and years of service at which State workers can retire and receive full or reduced benefits. Figure A-1 shows the age and service requirements for each State. The retirement age used in this figure is the youngest age at which full retirement benefits are payable and the years of service required for retirement at that age. Twenty States permit retirement at any age, provided that the service requirement is met; in 15 States this service requirement is 30 years, four States require 35 years and one State allows retirement at any age with 25 years of service. Nine States provide unreduced benefits at age 60, and 11 not until age 65. However, of the States requiring workers to be age 65 for unreduced benefits, the required years of service are considerably less than those required by States permitting retirement at a younger age. Altogether, half of the States covering 30 percent of all State workers permit retirement with full benefits at or before age 55, which is the youngest age allowed for full benefits in the Federal civil service.

FIGURE A-1. STATEWIDE SYSTEMS: EARLIEST AGE FOR FULL BENEFITS AND YEARS OF SERVICE REQUIRED, 50 STATES

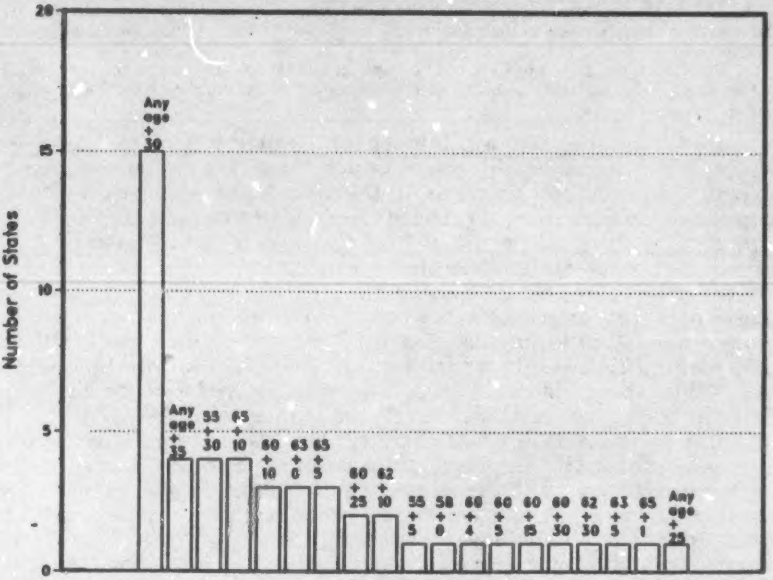


Figure A–2 shows the percentage of all State employees covered by a Statewide retirement plan according to the age specified in their plan for normal retirement. Over one-third of State employees are covered by plans that do not specify an age for retirement, but allow retirement with full benefits when the service requirement is met. Nearly 46 percent of all State workers can retire before reaching age 60; 23 percent must be age 65.

FIGURE A-2. Earliest Retirement Age for Full Benefits, Percent of All State Employees

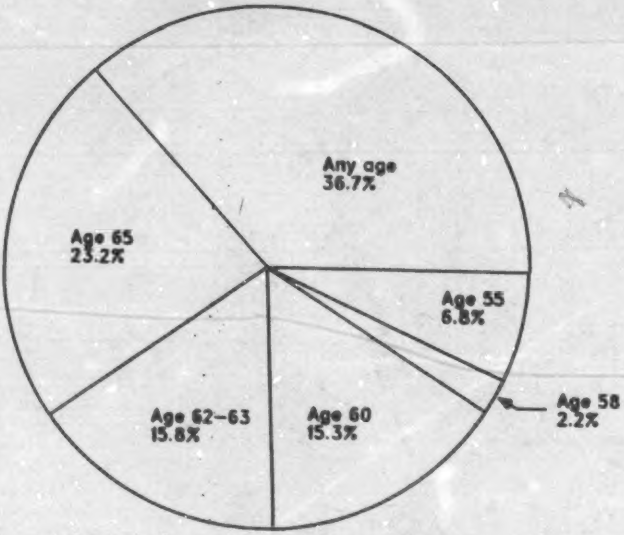


Figure A–3 presents the distribution of years of service required for full benefits. Ninety-five percent of State employees are in plans that allow retirement with 30 or fewer years of service, although they must have reached the age specified by the plan.

FIGURE A-3. Years of Service Required at Earliest Retirement Age for Full Benefits, Percent of All State Employees

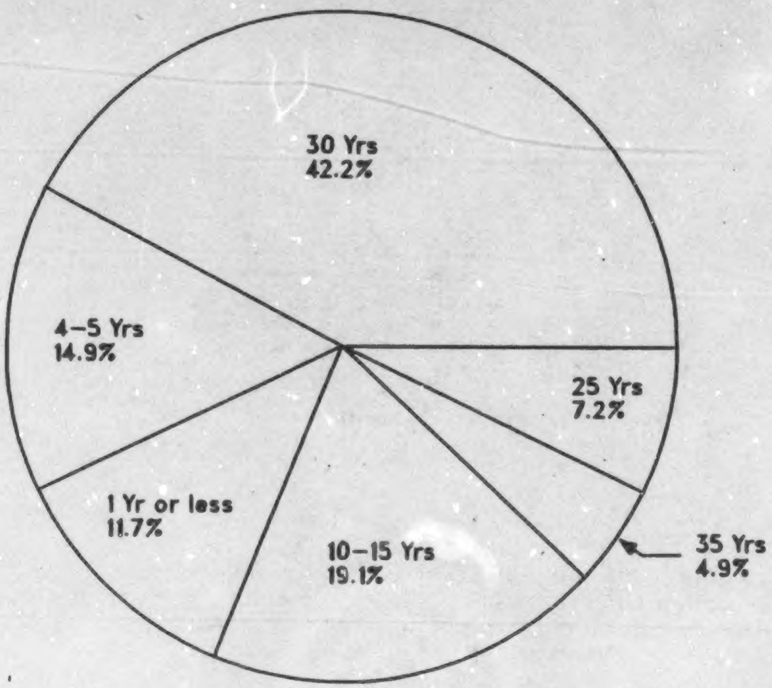
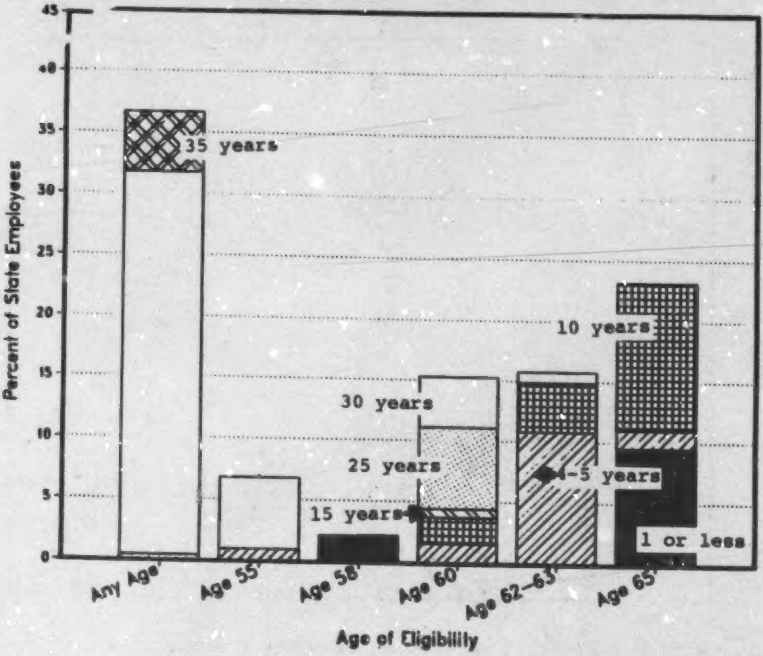


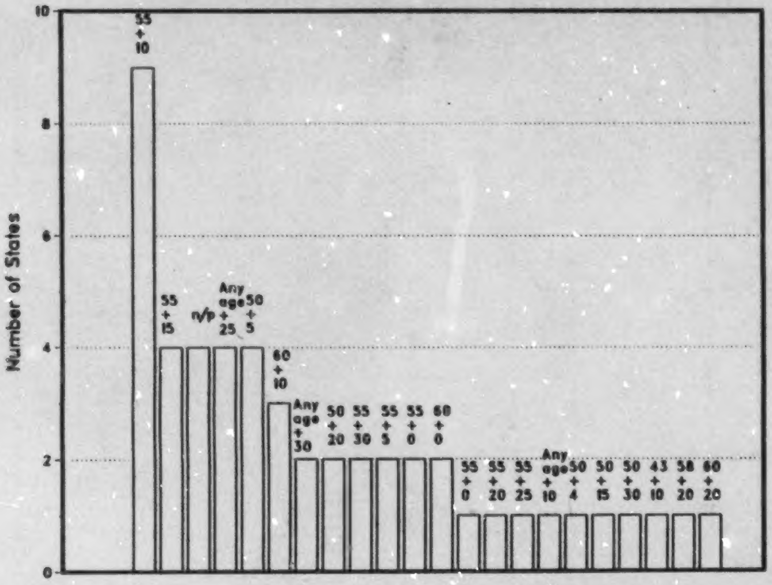
Figure A-4 shows the proportions of State employees according to the combined age and service requirements of the plans in which they participate. As the figure indicates, over a third of employees are covered by plans that do not specify a retirement age, and of those, most are in plans that require 30 years of service. The bar at the far right on the figure shows that the second most common retirement age is 65, but the most common service requirement at that age is less than five years. No State requires more than 10 years of service when the normal retirement age is 65. Overall, over 30 percent of all State workers participate in State retirement plans that provide full benefits at age 55 or younger with 30 or fewer years of service.

Figure A-4. Age and Service Combinations for Full Retirement Benefits



All but four States have a provision for early retirement with reduced benefits. In comparison, the Federal civil service has no equivalent provision for this kind of voluntary early retirement. The distribution of the age and service requirements for early retirement from State employment are shown in figures A-5 through A-8. Figure A-5 shows the distribution of the States according to their age and service requirements for early retirement with reduced benefits. Nine States allow early retirement at age 55 with only 10 years of service, but there is a very broad range of early retirement requirements among the States. Thirteen States allow early retirement at age 50 or younger, and these 13 States employ 44 percent of all State workers.

FIGURE A-5. State-wide Systems: Earliest Age for Retirement With Reduced Benefits and Years of Service Required, 50 States



Figures A–5 and A–6 show early retirement age and service requirements separately and the proportion of all State employees to whom the different provisions pertain. Figure A–8 shows the proportions of State employees covered under the specific combinations of age and service required for early retirement. Over one-third of all State employees have the option to retire with reduced benefits at the age of 50 if they have five years of service or are age 55 with as little as one year. (Benefits for someone retiring with this little service would, generally, be quite small).

Nearly all the States use an actuarial formula to reduce the benefits of workers taking early retirement and, therefore, there is no cost to the retirement plan for providing this option. A few States use something less than an actuarial reduction, and some use combined formulas, depending on the retiree's age.

FIGURE A-6. Earliest Retirement Ages for Reduced Benefits, Percent of All State Employees

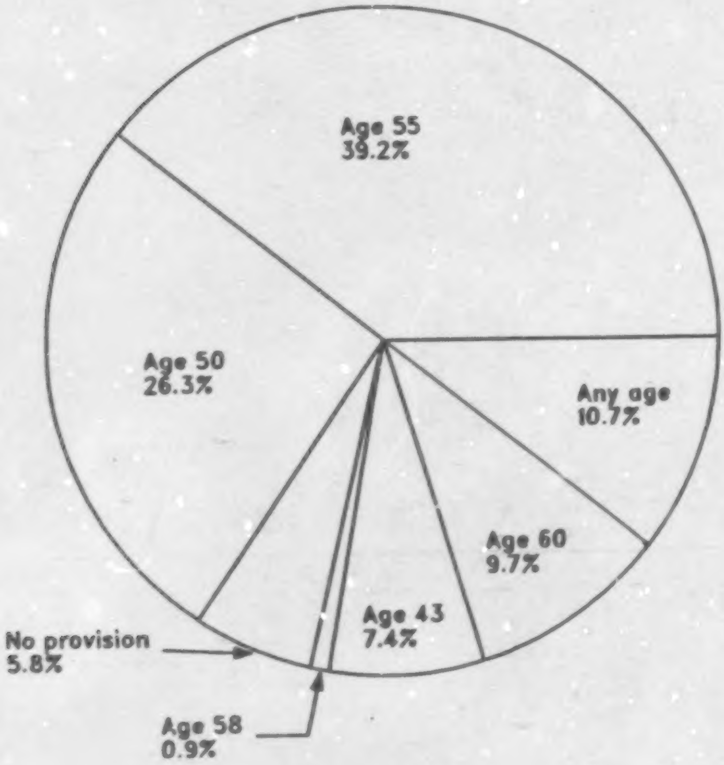


FIGURE A-7. Years of Service Require[illegible] at Earliest Retirement Age for Reduced Benefits, Percent of All State Employees

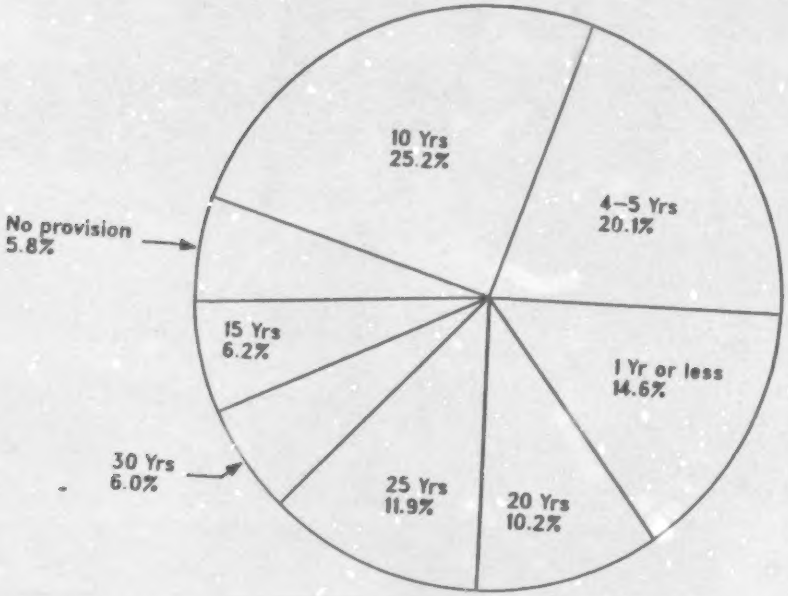
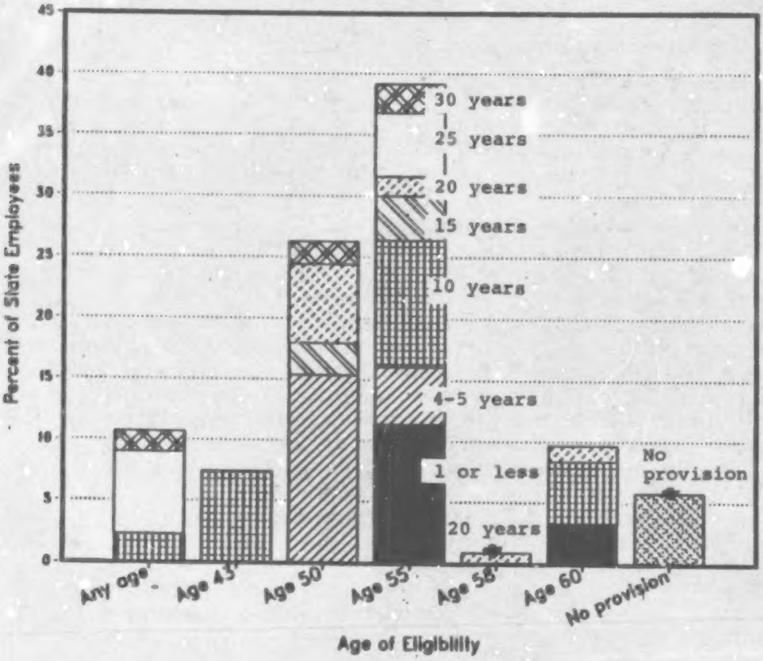


FIGURE A-8. Age and Service Combinations for Reduced Retirement Benefits



5. Disability practices

Most States provide for disability retirement. The definitions of disability vary. About half the States require that the disability be total and permanent and that the individual be unable to engage in any gainful employment, while the other half require only that the person be unable to perform his own or a comparable job. Of the States requiring permanent and total disability, most use the social security definition of disability—the remainder use their own definition.

States also impose service requirements. In about half the States, the length of service required is longer or shorter than the retirement vesting period; in the other half it is the same. Usually the service requirement is either five or 10 years. Five States have LTD insurance plans.

While the methods States use to compute disability retirement benefits vary widely, they are almost always related to the normal retirement formula. The worker is usually credited with years of service, up to a maximum of 20 to 30, projected to normal retirement age, or to age 60. As a rule, benefits are not reduced to take account of the early retirement age. Some States offset all or part of social security but typically the State disability benefits are added to social security. Other common State practices include placing minimum and maximum limits on benefits, offsetting benefits by workers' compensation, and imposing a limit on earned income.

6. Capital accumulation plans

a. Section 457 plans.—Section 457 of the Internal Revenue Code authorizes State governments (and their political subdivisions) to assist their employees in deferring compensation. Deferred compensation generally refers to wages earned in one period but not received until the worker has resigned, retired, or died. The wages that are deferred are not counted as taxable income until the employee receives them (along with any accrued interest or earnings).

Section 457, created under the Revenue Act of 1978, was a response by the Congress to the IRS's intent to issue regulations that would have ended the favorable tax treatment of deferred compensation plans. Although deferred compensation plans have existed for at least 30 years, the first favorable ruling from the IRS did not come until 1960. The first favorable ruling on deferred compensation plans for public employees came in 1972. The IRS later determined that this ruling was incorrect. In January 1978, the IRS issued proposed regulations that would have ended the favorable tax treatment of deferred compensation plans—leading to the inclusion of Section 457 in the 1978 Revenue Act.

The following are the general requirements of Section 457 plans. Employees participate on a voluntary basis and up to 33⅓ percent of an employees "includible" income (up to $7,500) may be deferred.[66] "Includible" income does not include amounts deferred under the plan (or other types of deferred compensation plans) or employer "pickup" plans. Thirty-three and one-third percent of "includible" income is equal to 25 percent of a nonparticipating employee's gross income. Employers may not make supplemental contributions to the plan. Distribution of the deferred compensation may only occur after separation from the employer or for unforeseeable emergencies. There is no penalty for distribution of funds before age 59½ (as is the case of IRAs). The full amount of the deferred compensation, including any earnings or property rights, must remain the property of the employer (State or local government) until distribution. The plan may provide employees with a range of investment options. Because of the property rights requirement necessary for favorable tax treatment, the plan may not be under obligation to transfer investments at an employee's request.

Several features of section 457 plans may make them less desirable to State employees than section 401(k) plans. Section 457 plans are less portable; they may only be rolled over into other section 457 plans within the same State. Section 401(k) plans may be rolled over into IRAs or other "qualified" [67] plans. Because section 457 plans are not "qualified" plans they receive less favorable tax treatment at the time of distribution. Specifically, a lump sum distribution from a section 457 plan does not qualify for the special

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[66] This percentage would differ if the employee participates in more than one deferred contribution plan or an employer "pickup" plan. There are special rules on combining income or reducing the salary base in applying the contribution limits for such employees.

[67] For the definition of qualified plans, see page 228.

10-year income averaging available to lump sum distributions from section 401(k) plans. Finally, the contribution limits for higher paid employees (generally those with gross income of over $30,000) are higher under section 401(k) plans.

Section 457 plans are, however, considered less difficult to administer. First, because they are not "qualified" plans, they do not have to conform to the rules governing such plans (such as the nondiscrimination provisions). Second, no employer matching is permitted under section 457 plans, while matching is permitted under section 401(k). Finally, the applicability (and, therefore, legality) of section 401(k) plans to State and local governments is more uncertain than 457 plans. Because 401(k) plans are essentially "profit sharing" plans, there is some question of their availability to the non-profit public sector. A 1980 IRS General Counsel's memorandum does suggest, however, that tax exempt entities (including State and local governments) may be able to set up 401(k) plans.

The Council of State Governments report[68] states that 30 of the 36 States which responded to their October, 1982 survey had set up deferred compensation plans for their employees. Three other States had passed enabling legislation but enrollment of employees had not begun at the time of the survey. The New York State study[69] reports that about 80 percent of the States had implemented deferred compensation plans (the report was issued in November of 1983). The study also noted that, while comprehensive figures are not available on local governments, 700 counties have joined a deferred compensation plan offered by the National Association of Counties and the Conference of Mayors.

Data on participation in section 457 plans are limited. However, both of the studies reviewed for this discussion place participation at about 10 percent of eligible employees.

b. Other plans.—Deductible Voluntary Employee Contributions (DVECs) are very similar to IRAs. They are authorized in section 72(o) of the Internal Revenue Code, which was added by the Economic Recovery Tax Act of 1981. The differences between DVECs and IRAs include:

Participation.—Available to employees covered by a pension plan which specifically permits deductible voluntary employee contributions. The contributions must be voluntary; they may not be matched or subsidized.

Contribution limits.—The maximum voluntary contribution is the lesser of $2,000 per year or 100 percent of income. Unlike an IRA, no separate account or additional contribution is permitted for the individual's non-working spouse. These contribution limits must be offset against IRA limits. Thus, an employee who makes a maximum $2,000 DVEC cannot make a separate $2,000 deductible contribution to an IRA. Contributions may be made as late as April 15 for the preceding tax year, if permitted by the plan.[70]

Section 403(b) Tax Deferred Annuities (TDA) are basically available to public education employees. The rules governing TDAs are rather complex. Since this report does not deal specifically with retirement plans for teachers, and TDAs would not be permitted for most Federal employees, the reader is referred to the New York

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[68] State Deferred Compensation.
[69] Supplemental Retirement Plans for New York.
[70] Supplemental Retirement Plans for New York.

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State Pension Commission report for a full discussion of this type of supplemental retirement plan.

D. MUNICIPAL AND COUNTY SYSTEMS

While many States cover county and city workers in the Statewide retirement system for general service workers, many local governments operate their own retirement system for these workers. According to the 1982 Census of Governments, there are 491 such general service local systems employing nearly one million persons. A complete review of non-Federal retirement systems should include at least an overview of locally funded and administered retirement coverage provided to local workers. There is, however, no current source of information that describes the features and benefits of all or most of these retirement plans.

In addition to the limited information included in the Census of Governments, the only data available are included in the Wyatt Company's 1981 report covering 24 localities. The 24 localities were selected to represent a variety of geographic locations. While these 24 plans give some idea about local pension plan practice, it should be remembered that they do not constitute a representative sample of plans from which national generalizations can be drawn.[71]

According to the Census of Governments, 70 percent of locally administered pension systems also provide social security coverage for all their employees, and another 13 percent provide social security coverage for some of their employees. The local plans described in the Wyatt report indicate that local pensions are not integrated with social security, but are simple add-on plans.

Benefits under local pension plans appear to be more generous than those under State plans. According to the Census of Governments, average monthly benefits to retired general service workers in 1982 were 37 percent higher than average benefits to that category of retired State employees. While average benefits are a function of many different factors, the accrual rates of the 24 plans described in the Wyatt report are generally high. Eighteen out of the 24 plans have accrual rates of 2.0 percent or higher.

Nine of the 24 localities require that workers be 60 years old before they are eligible for unreduced benefits. Of those, eight require only 20 or fewer years of service. Another 70 localities allow retirement at age 55 or younger with 30 years of service. All 24 localities have provisions for early retirement with a reduced benefit. In about half of the jurisdictions, early retirement is provided at age 55 or younger with 20 or fewer years of service.

Vesting periods and the compensation base used in local pension systems resemble those in State plans, with most local plans requiring either five or 10 years for vesting and using either three or five years as the compensation base. In addition, most local plans provide some kind of postretirement annuity adjustments on either an ad hoc or automatic basis. Ten of the 24 plans included in the Wyatt report provide automatic adjustments based on the CPI but capped at either three or five percent; seven provide ad hoc adjustments, and only two indicate no adjustments.

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[71] These localities are: Atlanta, Baltimore, Chicago, Cincinnati, Cook County, Dallas, Denver, Los Angeles City, Los Angeles County, Milwaukee City, Milwaukee County, Montgomery County (MD), Nashville, New Orleans, New York City, Omaha, Orange County (CA), Philidelphia, Phoenix, Richmond, St. Louis, San Diego County, San Francisco City and County, Seattle.

Local pension plans are generally contributory systems, with the employees' contributions varying between three and eight percent; four of the 24 plans are noncontributory.

APPENDIX B: FINANCING THE CIVIL SERVICE RETIREMENT SYSTEM

I. Introduction

This appendix analyzes the financing of the civil service retirement system (CSRS) separately from the main topic of this study. Once the federal government has established the new program, there will be two retirement programs. The old program will disappear gradually as the new program takes over for all Federal workers. Federal taxpayers want to now how future costs might affect the Federal budget deficit and taxes. Federal workers want assurance that they will receive their promised benefits.

This section answers four questions:

1. How does CSRS financing differ from private pension financing?

   —Private employers must set aside enough money to fund the retirement benefits they have promised. Despite setting aside substantial budget authority to cover future costs, the Federal Government unavoidably pays for CSRS benefits as they come due.

2. What does "amortizing on unfunded liability" mean for the CSRS trust fund?

   —Amortizing the CSRS unfunded liability would not necessarily change future costs, but it would account for them explicityly in the gross Federal debt. However, debt held outside the Federal Government by the public would not change.

3. Could Federal workers or taxpayers gain from investing CSRS funds in assets other than Federal Government securities?

   —Investment of CSRS funds in assets other than Federal Government securities would have little economic effect.

4. How would the five illustrative pension plans analyzed in Chapter 5 affect the Federal unified budget?

   —The overall "employer cost" was held constant in the analysis of the five illustrative pension plans in Chapter 5, but the "employee cost" varied depending on how much the employees were estimated to contribute to each plan. This implies that the total cost of these plans would vary. The anlysis shows that the effect on the unified budget deficit would vary depending on: (a) the baseline against which one compares the plans; (b) the level of employee and employer contributions; and (c) whether the funds are held on- or off-budget.

II. DIFFERENCES BETWEEN PRIVATE PENSION AND CSRS FUNDING

Private employers must set aside enough money to fund the retirement benefits they have promised their employees. The Employee Retirement Income Security Act of 1974 (ERISA) established the funding standards that private pension plans must meet. In contrast, the Federal Government does not set aside funds to cover the benefits it has promised to civil servants. Instead, it sets aside budget authority through an intrabudgetary transaction between the general fund and the CSRS trust fund. This budget authority[72] does not cover the full estimated future liability in CSRS. However, even if the Federal Government did set aside enough budget authority to cover the estimated future costs, it still would pay for CSRS benefits as they come due.

A. PRIVATE PENSION FUNDING

The purpose of private pension funding is to assure that employers set aside enough money to fund the retirement benefits they have promised to their employees. The funding method differs depending on whether contributions go to a defined contribution plan or a defined benefit plan:

- Under a defined contribution plan, the contribution to an employee's account is fixed. The benefit becomes whatever the employee can buy with the amount accumulated in his account. For example, the employee could buy an insurance annuity providing a constant monthly payment until he dies.
- Under a defined benefit plan, a formula in the plan determines a retirement benefit, but not the contribution. For example, a defined benefit could be a specified amount per month, percent of pay, or percent of pay times years of service. Actuarial estimates of the future pension benefits determine the contributions necessary to pay for the benefits. These estimates require assumptions about such factors as the rate of change in wages, rate of return on investments, rate of employee termination, rate of disability retirement at different ages, and rate of death at different ages.

The ERISA requires private employers who have established pension plans to meet certain funding standards. These standards apply mainly to defined benefit plans because the defined contribution plan is "fully funded" by definition. That is, the plan defines the employer's contributions so that after the employer makes his contributions his obligations are fully funded.

Under defined benefit plans, ERISA requires employers to: (1) fund the pension benefits earned each year by the employees; and (2) "amortize" or pay off over a period of time certain supplemental liabilities, such as:

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[72] The U.S. General Accounting Office has defined budget authority as: Authority provided by law to enter into obligations that will result in immediate or future outlays involving Federal Government funds, except that budget authority does not include authority to insure or gurantee the repayment of indebtedness incurred by another person or government. The basic forms of budget authority are appropriations, authority to borrow, and contract authority. Budget authority may be classified by the period of availability (1-year, multiple-year, no-year), by the timing of congressional action (current or permanent), or by the manner of determining the amount available (definite or indefinite). See U.S. General Accounting Office, A Glossary of terms Used in the Federal Budget Process, p. 41.

- —benefits based on past service, or so-called "past service credits" for which the employer has not set aside funds (amortized over no more than 30 years);
- —increased benefits granted to individuals with benefits based on past service for which the employer has not set aside funds (amortized over no more than 15 years);
- —losses or gains to the fund based on experience that differed from actuarial assumptions (amortized over no more than 15 years); and
- —losses or gains to the fund implied by changes in actuarial assumptions (amortized over no more than 30 years).[73]

B. FUNDING OF THE CIVIL SERVICE RETIREMENT SYSTEM

The statutory funding policy for CSRS is:[74]

- Employee and employing agencies contribute seven percent of basic pay each or 14 percent overall. The 14 percent of basic pay approximates "static normal cost."[75]
- Under the Civil Service Retirement Amendments of 1969 (P.L. 91-93), the general fund transfers to the CSRS trust fund three types of payments:
  - —payments to amortize over 30 years any increase in unfunded liability resulting from additional benefit increases stemming from salary increases, but excluding cost-of-living adjustments (COLA) on annuities;
  - —payment of five percent interest on the statutory "unfunded liability" (see below); and
  - —payment of the estimated cost of benefits resulting from military service minus certain deposits made by employees for such service.

As of September 30, 1983, the "statutory unfunded liability" for current employees and annuitants was $188 billion. It is defined as the present value of all benefits payable to employees, former employees, and their survivors minus: (1) the present value of the overall 14 percent of future basic pay contributed by employees and employing agencies (static normal cost); (2) the present value of the remaining 30-year amortization payments that have been scheduled previously; and (3) the fund balance on the date of the calculation of the unfunded liability.

The statutory method used to calculate this unfunded liability is static. That is, there is no assumed COLA on annuities or overall salary growth in the future. Under an alternate "dynamic method," OPM estimated the unfunded liability at $528 billion as of September 30, 1983. This estimate included assumed COLA on annuities and salary growth of 5.0 and 5.5 percent per annum, respectively.[76] This increased the normal cost from 14 percent of payroll under the static method to about 36 percent under the dynamic method.

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[73] Amortizing losses or gains resulting from changes in actuarial assumptions or experience that differed from the assumptions allows employers to avoid large changes in the percent of payroll contributed to the pension fund from one time period to the next. Amortizing a loss involves paying an additional percent of payroll over 15 or 30 years, while amortizing a gain involves paying a smaller percent of payroll over 15 or 30 years.

[74] Based on United States Office of Personnel Management, U.S. Civil Service Retirement System, Annual Report, Sept. 30, 1983.

[75] "Static normal cost" does not account for overall salary growth or cost-of-living adjustments in annuities.

C. AMORTIZING UNFUNDED LIABILITIES IN CSRS

Static or dynamic unfunded liabilities in the CSRS are accounting concepts. They alert taxpayers to the level of future costs, but they have no current economic effect in themselves. Amortizing unfunded liabilities would not necessarily change future costs, but it would account for them explicitly in the gross Federal debt.

The $528 billion unfunded liability estimated under dynamic assumptions by OPM has raised concerns about the future cost of CSRS. Not only is it over 50 percent of the estimated present value of future benefits of nearly one trillion dollars, but OPM projects its relative size to grow. This would happen primarily because Congress does not amortize the COLA on annuities.

Such a relatively large and growing unfunded liability would cause great concern in the private sector. Given the ever-present risk of pension plan termination in the private sector, employees would wonder whether the employer would set aside enough funds to pay for the retirment benefits he has promised. Congress allayed these fears in the private sector with the enactment of the funding standards in ERISA.

The risk of pension plan losses or even termination is different in the Federal Government. The "full faith and credit" of the Federal Government backs CSRS benefits, which depend on the fiscal and monetary policies citizens choose to support. Although relatively large Federal deficits are projected well into the future, the Federal Government is not likely to go out of business or to default entirely on its obligations. However, Congress could cut pension benefits as well as other outlays as part of its overriding concern about budget deficits.

D. EFFECTS OF AMORTIZING UNFUNDED LIABILITIES IN CSRS ON THE UNIFIED BUDGET

The U.S. General Accounting Office has provided this explanation of the Federal unified budget:

> The present form of the budget of the Federal Government adopted beginning with the 1969 budget, in which receipts and outlays from Federal funds and trust funds are consolidated. When these fund groups are consolidated to display budget totals, transactions that are outlays of one fund group for payment to the other fund group (i.e., interfund transactions) are deducted to avoid double counting. By law, budget authority and outlays of off-budget entities are excluded from the unified budget, but data relating to off-budget entities are displayed in the budget documents.[77]

Amortizing unfunded liabilities would have no effect on the Federal unified budget deficit. Only an interfund transaction would occur in which:

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[76] The dynamic method also used an assumed interest rate on the fund balance and unfunded liability of six percent per annum instead of the five percent used under the static method.

[77] U.S. General Accounting Office. A Glossary of Terms Used in the Federal Budget Process, p. 81.

- The general fund would transfer funds to the CSRS trust fund;
- The CSRS trust fund would receive the funds from the general fund;
- The transfer from the general fund would offset the receipt of the CSRS trust fund; and
- The part of the gross Federal debt held internally by the Federal Government would increase. This would reflect, however, only an explicit accounting for a debt that taxpayers would face in the future anyway.

III. INVESTMENT POLICY

A. CIVIL SERVICE RETIREMENT SYSTEM INVESTMENT POLICY

The CSRS trust fund balances are presently invested only in United States Government securities. These securities are regarded as default-free and they are redeemable at par value at any time. In other words, the trust fund can convert these securities to cash as needed with no risk of capital loss. The United States Code (5 U.S.C. 8348(d) and (e)) specifies the interest rate:

> (d) The obligation issued for purchase by the fund shall have maturities fixed with due regard for the needs of the fund and bear interest at a rate equal to the average market yield computed as of the end of the calendar month next preceding the date of issue, borne by all marketable interest-bearing obligations of United States then forming a part of the public debt which are not due or callable until after the expiration of four years from the end of the calendar month.
>
> (e) The Secretary (of Treasury) may purchase other interest-bearing obligations of the United States, or obligations guaranteed as to both principal and interest by the United States, on original issue or at the market price only if he determines that the purchases are in the public interest.

As of September 30, 1983, about 98 percent of the CSRS trust fund assets of $109 billion was held in the form of non-marketable special Treasury bonds and certificates of indebtedness.[78] The remaining two percent was held in marketable government securities. These investments provide a risk-free yield to the CSRS trust fund. They reflect the average yield on marketable interest-bearing obligations of the United States that compose the part of the national debt not due or callable before four years have passed. When investors can earn an interest premium for investments with maturities exceeding four years, this will yield a rate of return to the CSRS trust fund that will be higher than if its investments were in securities with interest rates linked to short-term investments.

The interest yield to the CSRS trust fund has no effect on the Unified Budget deficit. Much like amortizing an unfunded liability, the payment of interest by the general fund to the CSRS trust fund is an intrabudgetary transaction. Receipt of interest by the CSRS trust fund offsets the transfer by the general fund.

A higher yield on investments might make civil servants feel more secure or help decision makers consider future costs explicitly, but it has no direct effect on future costs. Moreover, since the current CSRS is a defined benefit plan, a higher yield would have no effect on the retirement benefit. The benefit is determined by a formula that would remain unaffected by the trust fund invetment yield. Of course, Congress could increase benefits later in response to a realized higher yield, but civil servants could not count on this without a statutory guarantee.

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[78] U.S. Office of Personnel Management. U.S. Civil Service Retirement System, Annual Report, p. 21.

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B. PRIVATE SECTOR INVESTMENT

1. The proponents' view

When yields on default-free U.S. Treasury securities seem relatively low compared to average yields on risky but successful corporate stocks and bonds, some have suggested investing CSRS trust funds in private securities.[79] The argument is: If the Federal Government invests CSRS funds in the private sector then:

- The trust fund would earn a higher yield than it would investing in government securities;
- Under a defined benefit plan, the Federal Government would reap a savings because it would need to contribute fewer tax dollars to the trust fund;
- Under a defined contribution plan, the employees retirement income would increase; and
- Capital formation would increase, which would increase economic growth, future national income, and future tax revenue.

2. Private investment and yields

Economic theory does not support the assertion that private sector investing would necessarily reduce CSRS costs or increase benefits. A shift from essentially risk-free government securities to risky private sector assets could increase the expected yield on the combined CSRS portfolio, but this would exchange a *certain* yield for an *uncertain* yield.

Portfolio managers try to maximize yield by attempting to select an optimal mix of risky assets. These assets might include short-term bonds, long-term bonds, or corporate stocks. Two basic approaches often guide selection: (1) long-term interest rates tend to exceed short-term interest rates; and (2) a diversified portfolio of risky assets whose risks tend to offset each other can achieve a relatively high expected yield.

There are two main competing theories on the relationship between short-term and long-term interest rates: the capital risk and pure expectations hypotheses. The capital risk hypothesis asserts that investors can demand a risk premium on long-term bonds to compensate them for giving up the liquidity obtained from an otherwise equivalent sequence of short-term bonds. This implies that long-term bond interest rates will exceed short-term bond interest rates in the long run. The pure expectations hypothesis contends, on the other hand, that investors' demand for long-term bonds is strong enough to bid away the capital risk premium that might be associated with as given supply of long-term bonds. This suggests that long-term bond interest rate will equal short-term bond interest rates in the long run. If the pure expectations hypothesis holds, private and public pension fund managers can gain nothing in the longrun by investing in long-term bonds.[80]

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[79] See Jon S. Fossel, Investment Implications of New Federal Retirement Plan.

Risk involves the chance of earning a lower yield than expected. An optimal portfolio provides an expected yield that no other portfolio can equal or exceed at a lower risk.[81] In other words, an investor could choose a mix of securities that provides a higher expected yield, but the risk of a lower expected yield would be higher than in the optimal portfolio. When portfolio managers diversify their risky assets, they reduce the overall chance of a lower than expected yield, but they do not eliminate risk. In contrast, default-free government securities eliminate risk.

There is no risk either to civil servants or to the trust fund under the current policy. Civil servants face no risk because CSRS provides a defined benefit. The trust fund has no risk because its assets are considered to be riskless. The assets are riskless because the "full faith and credit" of the Federal Government backs them.

If a new defined contribution program were created and its funds were invested by each civil servant in risky private assets, some civil servants would earn a higher yield and others would earn a lower yield by accepting more risk. Whether there would be a net gain or loss for any given civil servant would depend on his portfolio performance over a given period of time. In the aggregate, the average yield would depend on general economic conditions. Civil servants could earn a higher yield than the risk-free government securities during an investment boom, but they could also earn a lower yield during a securities market downturn.

3. Higher yields and total lifetime compensation

Assuming the Federal Government could earn a higher yield on CSRS funds, would the present value of total lifetime compensation of civil servants increase? If one accepts the view that labor markets determine the total lifetime compensation that taxpayers pay to employ the kind of labor they want, total lifetime compensation would not change in the long run. If one rejects this labor market view, one might argue that the political process determines total lifetime compensation. This approach does not explain, however, why total lifetime compensation would differ continually from the expected market level. The labor market view allows for differences from the expected market level, but they are "compensating differentials." That is, they compensate for differences in productivity or quality of labor.

Under a defined benefit plan, the benefit remains constant even if a higher yield is earned on CSRS funds. Under the labor market view, the present value of total lifetime compensation while working would not change from the market level. It would appear as if the Federal taxpayers would pay lower taxes to finance the defined benefit. This might be a savings to the Federal taxpayers. However, they would pay for the same present value of total lifetime compensation anyway, but in a different form. Interest payments made by the borrowers of these funds would replace taxes. The distribution of interest payments might differ from the taxes, but the amount needed to pay the defined benefits would not change.

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[80] See Robert D. Auerbach, Financial Markets and Institutions, p. 161–187.

[81] Ibid., p. 205–215.

4. Higher yields and savings to the Federal Government

Assuming the Federal Government could earn a higher yield on CSRS funds, would this be a savings to the Federal taxpayers? Contributions to defined contribution plans would remain unaffected, but this might change the amount of contributions to defined benefit plans. Any revenue gained from risk premiums paid to the Federal Government by private investors on borrowed funds would offset future taxes and other revenues that the Federal Government would otherwise need to contribute to finance defined benefits.

In the long run, if one ignores distributional effects of different types of revenues, there would be no savings. Consider an exmple. Suppose the Federal Government sells default-free 20-year Treasury bonds to private lenders and immediately lends these funds to private investors for 20 years at the default-free interest rate plus a risk premium. Assuming the private investors do not default on their loans, in 20 years the Federal Government would have gained the compound value of the risk premium.[82] As a result, the taxpayers would not need to pay taxes of the same amount to help finance CSRS or any other Federal outlays, but the present value of total revenues would remain constant. The Federal Government would have changed only the source of revenue it collected, not the amount.

Suppose further that the CSRS trust fund is held outside Federal Government. As this fund earned the compound value of the risk premium, it would retain this revenue. In other words, the additional revenue would not show up in the unified budget. It would appear as if the compound value of the risk premium had been saved through lower contributions than would have been needed otherwise, but this cost would have been shifted off-budget. The compound value of the risk premium still would cover the same amount of retirement benefits, but it would no longer appear as revenue in the unified budget.

5. Higher yield and the savings rate of civil servants

Assuming that the Federal Government could earn a higher rate of return by investing CSRS funds in the private sector, the only real effect could occur under a defined contribution plan where the new policy might induce civil servants to increase their rate of saving. This could occur under the substitution effect as the higher after-tax investment yield on saving makes current consumption more costly relative to future consumption. Also, civil servants might increase current consumption with the increase in income resulting from the higher yield, which could reduce their rate saving. This could leave their desired savings rate unchanged. A small increase in saving resulting from a change in the behavior of less than two percent of the labor force could increase capital formation, economic growth, national income, and future taxes. How this conjecture fits in with the Federal Government's overall policies on savings and retirement is not clear.

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[82] Also, these actions would affect credit markets. When the Federal Government increases the supply of default-free securities relative to their demand, the price of these securities declines and their interest rate increases. Likewise, when it in turn increases the demand for private securities relative to supply, the price of them increases and their interest rate declines. Presumably, the net effect would not eliminate the risk premium, but it would reduce further any perceived advantage to this approach.

A defined contribution plan for civil servants that provides favorable tax treatment would increase the after-tax yield on saving and reduce the cost of future consumption relative to current consumption. For example, civil servants could contribute pre-tax dollars to such a plan and gain the benefit of deferred taxes on the contributions and accrued interest in the future. Since such plans are often available to private employees, this might make civil service retirement more comparable to private retirement plans. The cost to the Federal Government might appear to be the present value of the foregone tax revenue. In the longrun, however, this cost probably would be borne by the civil servants in the form of reduced before-tax wages because their after-tax wages would not increase above the market level. The distribution of their after-tax lifetime compensation would shift away from current wages to deferred wages, but the present value of total lifetime compensation after taxes would not change.

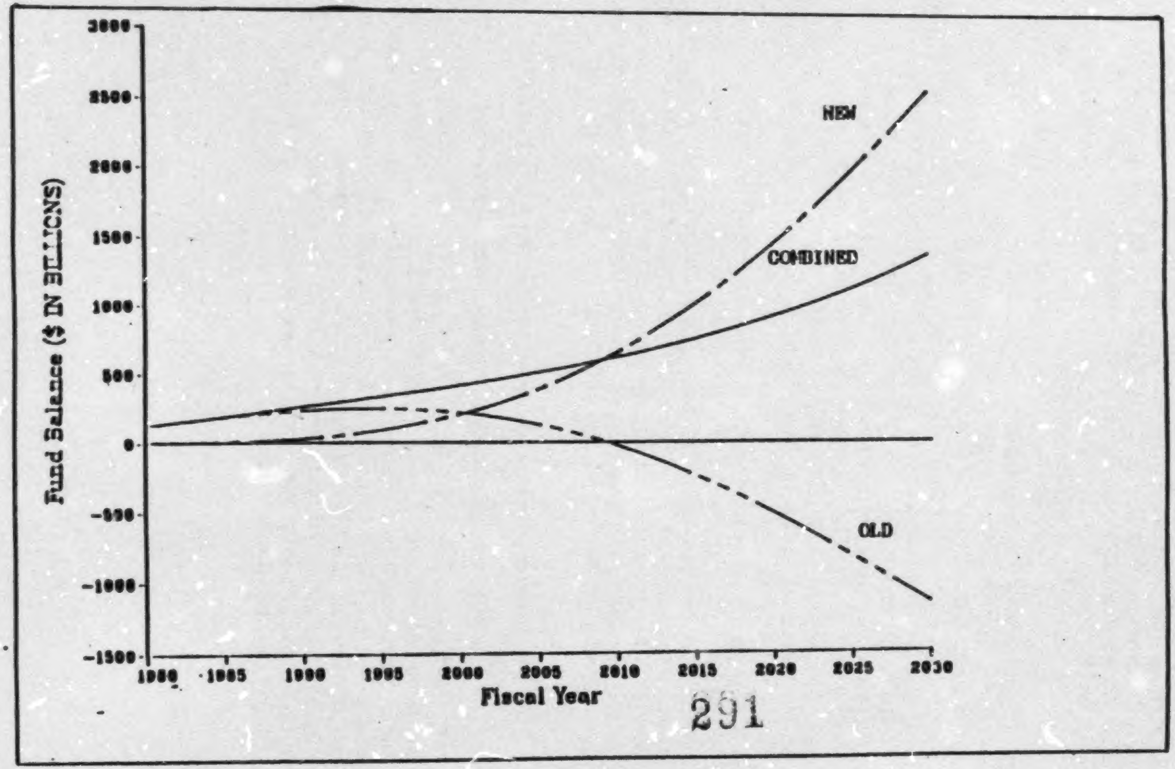
If the increased rate of savings by civil servants increased capital formation which increased productivity, which in turn increased the market level of after-tax wages, then in the longrun total lifetime compensation of civil servants might increase. Events necessary for this to occur are highly speculative. Moreover, Congress usually considers the general goal of stimulating capital formation in a broader context than the relatively small CSRS programs in this report.

IV. Budget Effects of the Five Illustrative Plans

A. TRUST FUNDS FOR THE OLD AND NEW EMPLOYEES

If the Temporary Adjustment Act (Title II of P.L. 98-168) were made permanent, the Unified Budget could have: (1) separate trust funds from which benefits would be disbursed for the old (pre-1984) and new (post-1983) employees; or (2) a combined trust fund from which benefits for all employees would be disbursed. Figure B-1 displays the projected end-of-year trust fund balances to fiscal year 2027 for the old employee, new employee, and the combination of old and new employee programs.

Figure B-1. Projected End of Year Trust Fund Balances for Old Employees, New Employees, and Old and New Employees Combined (1984–2027)



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The combined trust fund would grow steadily from about $119 billion at the end of fiscal year 1984 to $1,876 billion at the end of fiscal year 2027. However, the separate trust funds would diverge. The trust fund balance for old employees would grow slowly to a maximum of $263 billion at the beginning of fiscal year 2000, and then it would plummet to −$980 billion at the end of fiscal year 2027. This drop would occur because annuities would outstrip contributions as the number of old employees diminished and the number of old program annuitants increased. In contrast, the trust fund balance for the new employees would grow exponentially to $2,856 billion at the end of fiscal year 2027.

These projections demonstrate that a combined trust fund would have sufficient budget authority to cover outlays each year throughout the projection period under this study's assumptions. A separate trust fund for old employees was projected to run out of budget authority during fiscal year 2013. The trust fund for new employees was projected to accumulate budget authority, however, from over $1 trillion in 2013 to nearly $3 trillion by 2027.

Assuming no behavioral change by Congress in response to low or negative balances in the old employee trust fund, total outlays from separate trust funds in any fiscal year would be identical to outlays from the combined trust fund. The Federal Government would continue to pay for CSRS benefits as they come due. Appropriations would need to be authorized, however, for outlays not covered by prior appropriations or automatic appropriations stemming from employer and employee contributions each fiscal year.

B. BUDGET EFFECTS OF THE FIVE ILLUSTRATIVE PENSION PLANS ON THE UNIFIED BUDGET DEFICIT

In the analysis of the five illustrative pension plans discussed in Chapter 5, "employer cost" was held constant. "Employee cost" varied, however, depending on the amount employees were estimated to contribute to the illustrative pension plans. This implies that the total cost of these plans would vary.

The unified budget is an accounting framework used by the Federal Government. It aims to reflect the role of the Federal Government in the economy, but it is not perfect. For example, it sometimes excludes Federal activities despite their significant allocative effect on resources in the economy. The analysis in this section shows that the effect on the unified budget deficit of the five illustrative plans would depend on: (1) the baseline against one compares the pension plans; (2) the level of employee and employer contributions; and (3) whether the funds are held on- or off-budget.[83] Because the CRS cost model was not designed to produce tax expenditure estimates, the analysis does not include estimates of revenue losses associated with the favorable treatment of capital accumulation plans.

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[83] The U.S. General Accounting Office defines "off-budget" entities as: Certain federally owned and controlled entities whose transactions (e.g., budget authority or outlays) have been excluded from budget totals under provisions of law. The fiscal activities of these entities, therefore, are not reflected in either budget authority or budget outlay totals. However, the outlays of off-budget Federal entities are added to the budget deficit to derive the total government deficit that has to be financed by borrowing from the public or by other means.

Tables B–1 through B–4 present the projected effects of the five illustrative pension plans on the unified budget deficit for fiscal years 1986 through 1991. Tables B–1 and B–2 compare the plans to coverage under social security only. Tables B–3 and B–4 compare the plans to the extension of the Temporary Adjustment Act through 1991. Since the effects on the budget deficit of Plan I are projected to equal the effects under the Temporary Adjustment Act, the figures in tables B–3 and B–4 were obtained by subtracting the projections for Plan I from the corresponding projections for Plans II through V in tables B–1 and B–2. One should remember, however, the extension of the Temporary Adjustment Act was estimated to cost about three percent of payroll more than Plan I.

TABLE B–1.—EFFECT ON UNIFIED BUDGET DEFICIT OF THE FIVE ILLUSTRATIVE PENSION PLANS COMPARED TO SOCIAL SECURITY COVERAGE ONLY WITH CAPITAL ACCUMULATION PLANS ON-BUDGET FOR FISCAL YEARS 1985 THROUGH 1991

[Dollars in millions]

Plans	Fiscal year—					
	1986	1987	1988	1989	1990	1991
Plan I:						
Change in receipts	20	61	75	106	117	144
Minus change in outlays	2	9	18	30	43	58
Decrease in deficit	18	52	57	76	74	86
Plan II:						
Change in receipts	0	0	0	0	0	0
Minus change in outlays	1	3	8	15	25	37
Decrease in deficit	(1)	(3)	(8)	(15)	(25)	(37)
Plan III:						
Change in receipts	51	156	262	371	482	595
Minus change in outlays	4	24	55	98	147	206
Decrease in deficit	47	132	207	273	335	389
Plan IV:						
Change in receipts	60	184	310	438	569	703
Minus change in outlays	7	36	82	146	218	304
Decrease in deficit	53	148	228	292	351	399
Plan V:						
Change in receipts	60	184	310	438	569	703
Minus change in outlays	7	36	82	146	218	304
Decrease in deficit	53	148	228	292	351	399

TABLE B–2.—EFFECT OF UNIFIED BUDGET DEFICIT OF THE FIVE ILLUSTRATIVE PENSION PLANS COMPARED TO SOCIAL SECURITY COVERAGE ONLY WITH CAPITAL ACCUMULATION PLANS OFF-BUDGET FOR FISCAL YEARS 1986 THROUGH 1991

[Dollars in millions]

Plans	Fiscal year—					
	1986	1987	1988	1989	1990	1991
Plan I:						
Change in receipts	20	61	75	106	117	144
Minus change in outlays	2	9	8	30	43	5
Decrease in deficit	18	52	57	76	74	86

TABLE B-2.—EFFECT OF UNIFIED BUDGET DEFICIT OF THE FIVE ILLUSTRATIVE PENSION PLANS COMPARED TO SOCIAL SECURITY COVERAGE ONLY WITH CAPITAL ACCUMULATION PLANS OFF-BUDGET FOR FISCAL YEARS 1986 THROUGH 1991—Continued

[Dollars in millions]

Plans	Fiscal year—					
	1986	1987	1988	1989	1990	1991
Plan II:						
Change in receipts	0	0	0	0	0	0
Minus change in outlays	1	3	8	15	25	37
Decrease in deficit	(1)	(3)	(8)	(15)	(25)	(37)
Plan III:						
Change in receipts	0	0	0	0	0	0
Minus change in outlays	26	81	139	200	265	334
Decrease in deficit	(26)	(81)	(139)	(200)	(265)	(334)
Plan IV:						
Change in receipts	0	0	0	0	0	0
Minus change in outlays	60	187	318	453	594	740
Decrease in deficit	(60)	(187)	(318)	(453)	(594)	(740)
Plan V:						
Change in receipts	0	0	0	0	0	0
Minus change in outlays	60	187	318	453	594	740
Decrease in deficit	(60)	(187)	(318)	(453)	(594)	(740)

TABLE B-3.—EFFECT ON UNIFIED BUDGET DEFICIT OF THE FIVE ILLUSTRATIVE PENSION PLANS COMPARED TO EXTENDED COVERAGE UNDER THE TEMPORARY ADJUSTMENT ACT WITH CAPITAL ACCUMULATION PLANS ON-BUDGET FOR FISCAL YEARS 1986 THROUGH 1991

[Dollars in millions]

Plans	Fiscal year—					
	1986	1987	1988	1989	1990	1991
Plan I:						
Change in receipts	([1])	([1])	([1])	([1])	([1])	([1])
Minus change in outlays	([1])	([1])	([1])	([1])	([1])	([1])
Decrease in deficit						
Plan II:						
Change in receipts	−20	−61	−75	−106	−117	−144
Minus change in outlays	−1	−6	−11	−15	−19	−21
Decrease in deficit	(19)	(55)	(64)	(91)	(98)	(123)
Plan III:						
Change in receipts	31	97	188	265	365	451
Minus change in outlays	3	15	37	68	101	148
Decrease in deficit	28	82	151	197	264	303
Plan IV:						
Change in receipts	40	123	235	333	452	559
Minus change in outlays	25	27	64	116	175	246
Decrease in deficit	15	96	171	217	277	313

TABLE B-3.—EFFECT ON UNIFIED BUDGET DEFICIT OF THE FIVE ILLUSTRATIVE PENSION PLANS COMPARED TO EXTENDED COVERAGE UNDER THE TEMPORARY ADJUSTMENT ACT WITH CAPITAL ACCUMULATION PLANS ON-BUDGET FOR FISCAL YEARS 1986 THROUGH 1991—Continued

[Dollars in millions]

Plans	Fiscal year—					
	1986	1987	1988	1989	1990	1991
Plan V:						
Change in receipts	40	123	235	333	452	559
Minus change in outlays	25	27	64	116	175	246
Decrease in deficit	15	96	171	217	277	313

[1] Same as Temporary Adjustment Act during these years.

TABLE B-4.—EFFECT ON UNIFIED BUDGET DEFICIT OF THE FIVE ILLUSTRATIVE PENSION PLANS COMPARED TO EXTENDED COVERAGE UNDER THE TEMPORARY ADJUSTMENT ACT WITH CAPITAL ACCUMULATION PLANS OFF-BUDGET FOR FISCAL YEARS 1986 THROUGH 1991

[Dollars in millions]

Plans	Fiscal year—					
	1986	1987	1988	1989	1990	1991
Plan I:						
Change in receipts	([1])	([1])	([1])	([1])	([1])	([1])
Minus change in outlays	([1])	([1])	([1])	([1])	([1])	([1])
Decrease in deficit						
Plan II:						
Change in receipts	−20	−61	−75	−106	−117	−144
Minus change in outlays	−1	−6	−11	−15	−19	−21
Increase in deficit	(19)	(55)	(64)	(91)	(98)	(123)
Plan III:						
Change in receipts	−20	−61	−75	−106	−117	−144
Minus change in outlays	24	72	120	170	22	276
Increase in deficit	(44)	(133)	(195)	(374)	(339)	(420)
Plan IV:						
Minus change in outlays	59	78	299	423	551	682
Change in receipts	−20	−61	−75	−106	−117	−144
Minus change in outlays	59	178	299	423	551	682
Increase in deficit	(79)	(239)	(374)	(529)	(668)	(826)
Plan V:						
Change in receipts	−20	−61	−75	−106	−117	−144
Increase in deficit	(79)	(239)	(374)	(529)	(668)	(826)

[1] Same as Temporary Adjustment Act during these years.

1. Effect of Plan I

Plan I is a 100 percent offset plan with early retirement at age 55 with 30 years of service. It has an early-retirement supplement equal to social security at age 62 for the years before age 62 and it has no capital accumulation plan. In 1986 and 1987, employees would contribute 1.3 percent of their total pay to this plan. As the social security tax rate increases, this rate would drop to 0.94 percent and 0.8 percent in 1988–1989 and 1990–1991, respectively.

Compared to coverage under social security only, Plan I would reduce the deficit. Table B–1 shows that the net effect of increased receipts from employee contributions and increased outlays for employer contribution refunds plus disability and survivor's benefits would rise from $18 million in fiscal year 1986 to $86 million in fiscal year 1991. Because Plan I would have the same effect on the budget deficit as the extension of the Temporary Adjustment Act, table B–3 indicates that there would be no difference in budget deficit effects between the two plans. In addition, since Plan I does not have a capital accumulation plan, the off-budget estimates do not differ from the on-budget estimates.

2. Effect of Plan II

Plan II is 50 percent offset plan with early retirement at 55 with 30 years of service. For the years before age 62 it has an early-retirement supplement equal to social security benefits at age 62. Plan II has no employee contributions and no capital accumulation plan.

Compared to social security coverage only, Plan II would increase the deficit by increasing outlays for disability and survivor benefits. Also, compared to the extension of the Temporary Adjustment Act, Plan II would increase the deficit. Table B–3 shows that a decrease in receipts resulting from no employee contributions offset by a decrease in outlays resulting from no refunds of employee contributions would yield a net increase in the deficit rising from $19 million in fiscal year 1986 to $123 million in 1991. Since Plan II has no capital accumulation plan, the off-budget figures are the same as the on-budget figures for both baseline comparisons.

3. Effect of Plan III

Plan III is a 50 percent offset plan with early retirement at 55 with 30 years of service. It has an early-retirement supplement equal to social security benefits at age 62. Plan III has a capital accumulation plan with the employer matching 50 percent of the employee contributions up to six percent of pay.

Because Plan III has a capital accumulation plan, it has four possible budget effects. One can compare it to: (1) coverage under social security only with the capital accumulation plan on-budget (table B–1); (2) coverage under social security only with the capital accumulation plan off-budget (table B–2); (3) extension of the Temporary Adjustment Act with the capital accumulation plan on-budget (table B–3); and (4) extension of the Temporary Adjustment Act with the capital accumulation plan off-budget (table B–4). In general, Plan III reduces the deficit when the capital accumulation plan is on-budget and it increases the deficit when the capital accumulation plan is off-budget.

Table B–1 shows the budget effect of Plan III compared to social security coverage only with the capital accumulation plan on-budget. Receipts would increase from the average employee contribution of 3.3 percent of pay, but they are offset partly by an increase in outlays for employee contribution refunds and disability and survivor benefits. The net decrease in the deficit would climb from $47 million in fiscal year 1986 to $389 million in fiscal year 1991.

Table B-2 shows the same baseline comparison, but with the capital accumulation plan off-budget. This would reverse the net effect from a decrease in the deficit to an increase in the deficit as the average employer contribution of 1.65 percent of pay becomes an outlay. The increase in the deficit would rise from $26 million in fiscal year 1986 to $334 million in 1991.

When comparing Plan III to the extension of the Temporary Adjustment Act, the estimates for Plan I were subtracted from the corresponding estimates for Plan III in tables B-1 and B-2. The results in tables B-3 and B-4 show that the net effects would be to reduce the deficit decrease when the capital accumulation plan is on-budget and raise the deficit increase when the capital accumulation plan is off-budget.

4. *Effects of Plans IV and V*

Plan IV is a 50 percent offset plan and Plan V is an add-on plan. Otherwise, these plans have the same key parameters. They have: (1) normal retirement at age 62 with three percent per year reductions in benefits for early retirement; (2) annual COLAs equal to 50 percent of the CPI increase; and (3) capital accumulation plans with a 100 percent employer match of employee contributions up to six percent of pay. Because these plans have the same "employer cost," no mandatory employee contributions, and the same capital accumulation plan, their effects on the budget deficit would be identical.

Table B-1 shows the budget effects of Plans IV and V compared to coverage under social security only with the capital accumulation plan on-budget. Receipts would increase from the average employee contribution of 3.9 percent of pay, but they would be offset by an increase in outlays for employee contribution refunds and disability and survivor benefits. The net decrease in the budget deficit would climb from $53 million in fiscal year 1986 to $399 million in fiscal year 1991.

Table B-2 shows Plans IV and V compared to coverge under social security only, but with the capital accumulation plans off-budget. There would be no increase in receipts, but outlays would increase from the 3.9 percent employer contribution. The increase in the deficit would grow from $60 in fiscal year 1986 to $740 million in 1991.

Tables B-3 and B-4 compare Plans IV and V to the extension of the Temporary Adjustment Act. They were derived by subtracting the estimates for Plan I from the corresponding estimates for Plans IV and V in tales B-1 and B-2. In general, this would lower the cut in the deficit when the capital accumulation plans are on-budget and would increase the rise in the deficit when the capital accumulation plans are off-budget.

APPENDIX C: CRS COST AND REPLACEMENT RATE MODELS AND RESULTS

I. INTRODUCTION

CRS developed two computer models for the analysis in this report. One, an actuarial cost model, estimates pension plan costs as a percent of payroll (i.e., normal cost) for a group of new entrants. The other, a replacement rate model, estimates the proportion of final year's preretirement earnings replaced by the main retirement benefits (i.e., pension, social security, capital accumulation plan). The models were developed with actuarial support and computer services provided under contract by Hay-Huggins, Inc., an actuarial and management consultant firm. The models, were written using Hay-Huggin's Pension Valuation Language (PVL) proprietary software. This appendix discribes the concept of entry age normal cost, provides an overview of the CRS cost model, and presents a description of the methodology used to estimate pension plan costs. The methodology used to calculate replacement rates and the decision rules used in development of the replacement rate model are also discussed.

II. ENTRY AGE NORMAL COST

The cost of funding future pension benefits is expressed as an entry age normal cost as used in the CSRS. The percentage of every paycheck that should be set aside over the total career of each employee in a typical new entrant group to pay fully for benefits received by that group, including benefits for their eligible survivors.

The concept of entry age normal cost may be illustrated by tracing a group of newly hired workers through their work careers and on into retirement. At any time, a group of newly hired employees is likely to be quite young, on average, compared to the employer's total workforce. Those who leave the new entrant group in the first few years will not be eligible for pension benefits of any kind. As the group matures, benefit rights accrue, typically as a function of age, service and salary; at the same time, the proportion of active working members of the group diminishes (see figure C-1). Some members of the group will leave voluntarily to work elsewhere or engage in some other activity. Others may be terminated involuntarily, become disabled, or die before reaching retirement age. Some will continue to work for the employer until drawing retirement benefits. As employees end service with an employer, their benefit payment status is determined by the plan's specifications and the particular conditions under which they leave. The employer's obligation to pay benefits may extend well beyond the time at which the worker leaves, with benefits being provided to the primary annuitant until dealth, and to survivors as well.

Over the work career, contributions to a pension fund are made by the employer on behalf of the employee, and in some plans also by the employee himself, to pay for future benefits. Figure C-2 traces the progress of a theoretical fund that would be built, and used, entirely for one group of new entrants. (In practice, funds for all groups of employees are commingled.) In the initial years, the fund for the group of new entrants builds rapidly, since the majority of the group are working and contributing to the fund, but few benefits are being paid. At the same time, the fund's value accumulates, based on the return on its investment. In later years, the fund begins to erode, as benefit payments are made to former workers (and/or their survivors).

Figure C-1. Conceptual Retirement Fund Projection

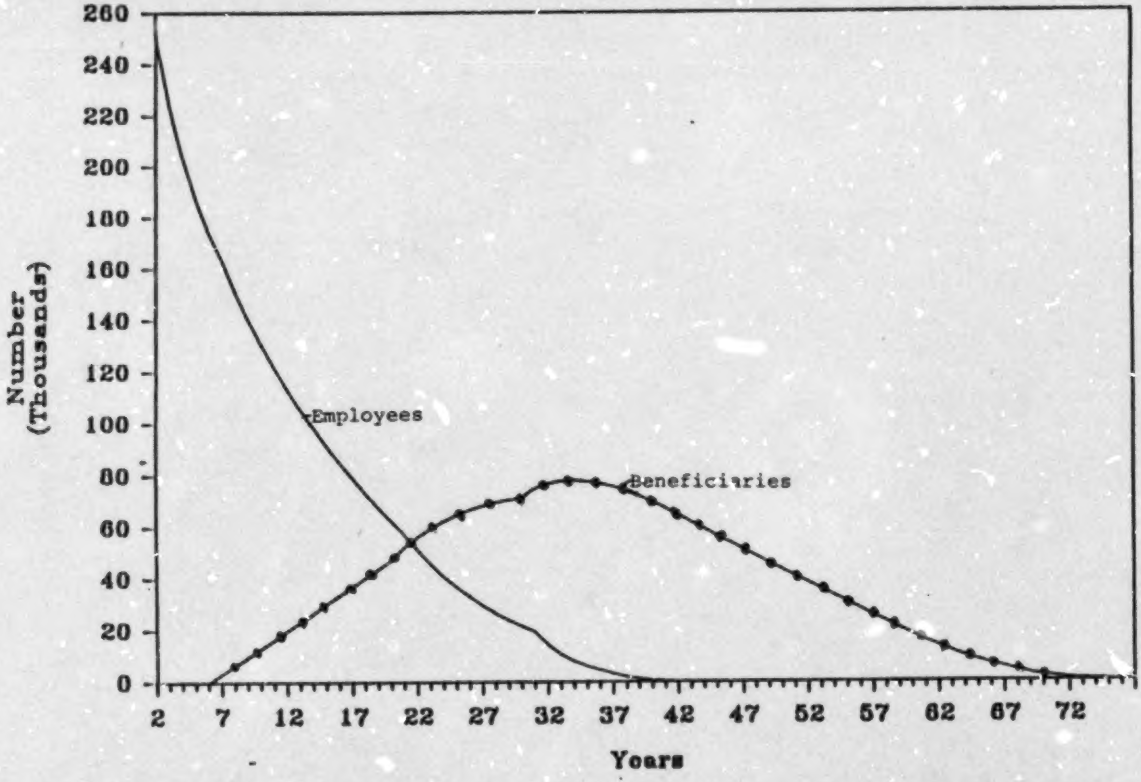
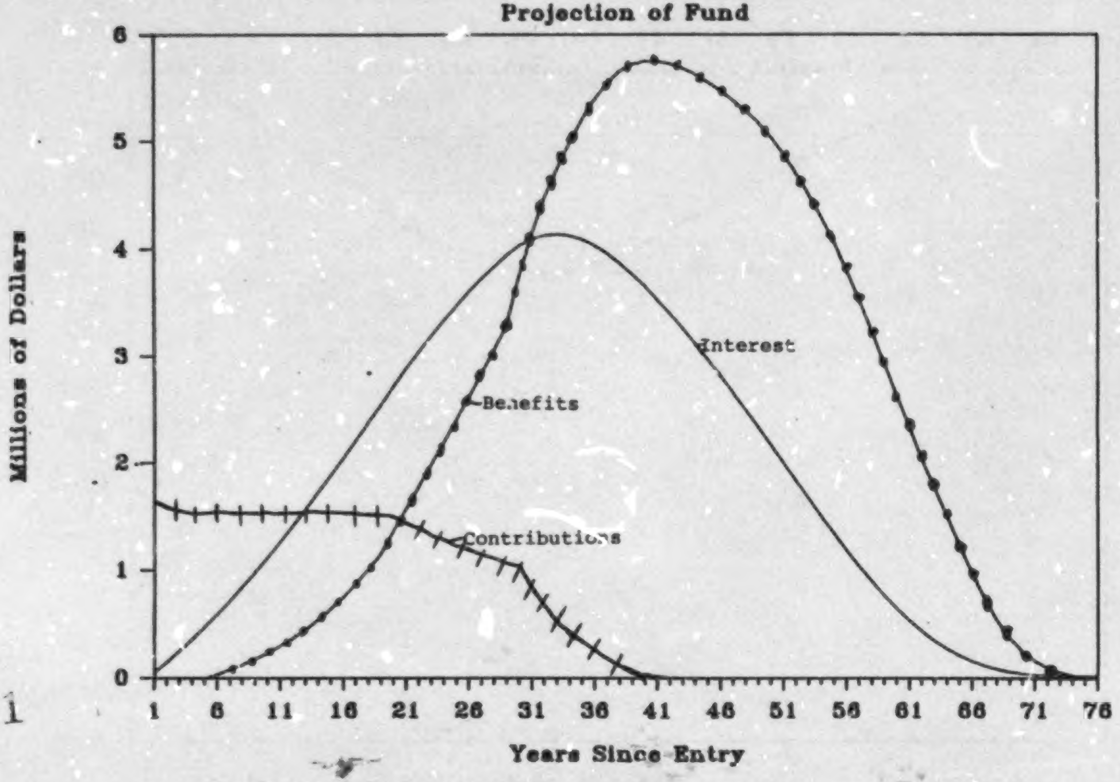


FIGURE C-2. Projection of Model Retirement Fund (Projection of Fund)



Estimates of future benefits and future compensation are converted to present values by discounting future dollars to present dollars by the time value of money (i.e., the interest rate or presumed return on investment). Because salaries and benefits are not paid indefinitely, an actuarial present value is used, which further discounts future pay and benefits by the likelihood that members of the group will survive to draw a salary or benefit in future years. In this sense the normal cost is defined as:

$$\text{Normal Cost} = \frac{\text{Present Value of Future Benefits,}}{\text{Present Value of Future Compensation}}$$

It follows that if assumptions about the future hold, and contributions are made to the fund over the course of employment equal to the normal cost, the fund would exactly pay for all benefits earned by the group and would erode completely as the last dollar is paid to the last survivor.

III. OVERVIEW OF THE CRS COST MODEL

The CRS Cost Model estimates the cost of future pension benefits to a group of newly hired workers and any dependents entitled to benefits. The CRS Cost Model is capable of providing total pension plan cost estimates and detailed cost breakdowns by benefit type for any type of plan specified. It also allows detailed analysis of the cost effects of specific plan features, such as COLA's or early retirement reductions. The model depends upon data on a sample of the new entrant workforce and a host of economic, demographic, and behavioral assumptions.

A. DATA

Both the Office of Personnel Management (OPM) and CRS Cost Model operate on a condensed data base to arrive at entry age normal cost estimates for a representative group of new employees. The new entrant data base used by the model consists of 213 cells, representing various combinations of age at time of entry, starting salary, creditable service from prior years worked, and sex. Each cell is weighted by its relative share of the entire new entrant population, so that results from the condensed data based may be generalized back to the entire group of newly hired employees. Use of a condensed data base rather than the full new entrant population yields great gains in modeling efficiency, with little loss in accuracy of results.

B. MODELING PROCESS

The model projects the new entrant population from age at entry to age 111. The model projects each cell forward, incrementing the cell's age and service for each year until it reaches age 111. As such, the projection period varies for each cell, depending upon the entry age represented by the cell, but the overall period modeled spans a century. As each cell is aged and its service adjusted, salary is projected forward by the presumed rate of general wage growth and individual merit increases.

Each cell is aged each year by applying age and service specific rates (decrements) which predict the likelihood of terminating service with the employer. The decrements are then examined to determine if the individual is eligible for a benefit at that point. For instance, an individual age 56 with 31 years of service would be entitled to a retirement benefit upon leaving the Federal service. An individual age 40 with 10 years would be entitled to a choice between a refund and a benefit payable at age 62.

The model calculates the amount of the benefit and the present value of the future payment of that benefit at the point of termination. The value at termination is derived by multiplying the proportion of the cell terminating, times the benefit, times the annuity factor. To relate all benefits and salaries to the same point of time, and correctly determine the normal cost, each of the benefit payments and the salaries is discounted to the point of entry into the retirement system. The summation of these present values provides the normal cost equation mentioned above.

C. ASSUMPTIONS

The estimate of the entry age normal cost resulting from the modeling process is sensitive to the assumptions used. Three major sets of assumptions affect the results obtained from the model.

1. Economic assumptions

Three economic assumptions—the interest rate, the rate of wage growth, and the inflation rate—affect normal cost estimates obtained from the model. The relative differences among these three factors are more important than the absolute level of interest, wages, and prices in affecting normal cost estimates. Historically, interest rates have exceeded the rate by which average wages grow, and both interest and wages have exceeded prices.

Of the three factors, the interest rate has the greatest effect on normal cost estimates and is used by the model for discounting future benefit and compensation dollars to the present, thereby operating over the entire projection period. The higher the real interest rate (interest relative to prices), the lower will be the normal cost—fewer dollars will have to be invested to pay for future benefits.

Assumptions about wage growth include the general wage growth, as well as individual career growth patterns. These assumptions affect the present value of compensation as well as the present value of future benefits, since benefits are typically linked to compensation. The effect of wage growth assumptions operates over the period in which the new entrant group is working. A higher wage growth assumption will tend to increase the estimated cost of both benefits and compensation, and thereby the size of both the numerator and denominator in the normal cost equation.

Inflation rate assumptions typically affect only the benefit side of the normal cost calculation, and then only when COLAs to benefits are assumed. In estimating the normal cost for a new entrant group, the effect of prices is greatest in the outyears, because the majority of new entrants will not begin to draw benefits until well past the time they were hired.

2. Demographic and behavioral assumptions

Mortality assumptions are among the most important demographic assumptions having a significant effect upon cost estimates. Mortality assumptions affect the probability that payment of a particular benefit will cease and/or commence. Mortality assumptions affect the value of an annuity that would be required at any given point to make a specified future payment contingent upon an individual surviving to collect that payment. The longer the expected lifetime of a beneficiary, the longer the payment period, and thus the larger the lump sum necessary to assure that payments can be made in the future. Mortality assumptions affect both the numerator and the denominator in the normal cost estimate. For example, the death of an employee reduces the compensation paid by the employer, but may obligate the employer to pay a benefit to a worker's surviving spouse or children. Future benefits payable to a surviving spouse are discounted by the probability that the surviving spouse will live each year into the future.

Several sets of mortality assumptions are used by the model. The model uses separate mortality probabilities for active workers, persons on disability retirement, persons on non-disability retirement, and those with vested deferred benefits prior to retirement. Under each set of mortality assumptions, the probability of death varies by age and sex. Mortality tables are constructed so as to reflect as closely as practical the mortality experiences of the particular groups being studied.

The model uses demographic assumptions other than mortality. For example, at each age, the probability of being married affects whether survivor benefits are paid. Similarly, the probability of death or remarriage after a survivor benefit has been paid builds survivor annuities. The model uses estimates of number and average age of child survivors, and the probability of death or termination of a child survivor's benefit, in computing benefits and the associated annuities for child survivors.

The CRS Cost Model uses four major sets of behavioral assumptions in estimating plan and benefit costs. These assumptions, relating to rates of withdrawal, disability, nonvoluntary retirement (reductions-in-force (RIFs)), and retirement, combined with mortality among active workers represent all of the reasons by which service is terminated. The four sets of behavioral assumptions used by the model relate both to the population and the plan design. Typically, in using the model, behavioral assumptions are modified when significant changes in plan design are made. Changes in plan design, as well as changes in behavioral assumptions, may affect cost estimates.

To some degree, the level and availability of benefits affect the probability that benefits will be selected. For example, one would expect that workers would postpone retirement if retirement benefits are significantly reduced for early retirement. While some involuntary retirements are not by choice, a substantial number may in fact be voluntary. This may be especially true in agencies undergoing RIFs. In early retirement pension reductions before age 62, the reduction in benefit before age 55 may be substantial. As with regular retirement, one would expect the "voluntary" component among involuntary retirees to be reduced if early retirement reductions are imposed.

In some cases, disability retirement may be considered voluntary behavior, with the election of disability being in part a function of benefit generosity. It is generally assumed that such behavioral changes are minor. More often, disability rates are a function of the definition of disability and the nature of the work performed. For example, disability criteria under social security are more stringent than those under Federal civil service. Social security defines disability as the inability to perform any job in the economy, whereas the civil service definition is based on the inability of the individual to continue to perform his or her own job.

Lastly, withdrawal rates are often a function of the level of the retirement benefit. The lower the retirement benefit, the more likely an individual will leave before reaching retirement age.

IV. METHODOLOGICAL APPROACH AND ASSUMPTIONS: CRS COST MODEL

A. ESTABLISHING A BENCHMARK COST

The principle of comparable cost guides much of the analysis presented in Chapters 4 and 5 of this report. In other words, the entry age normal cost of an illustrative plan plus social security will approximately equal the normal cost of the current CSRS.

Several steps were required to establish the current CSRS system cost used to compare illustrative plans and plan features throughout the report. First, the CRS Cost Model was validated against OPM's Cost Model by comparing CRS model results for the current CSRS with those reported by OPM. Second, the cost of the current CSRS was set as a target to be used throughout the report, using economic and demographic assumptions deemed most appropriate for the analysis. Third, the cost of social security to newly hired Federal employees was estimated since plan options would all be integrated with social security in one way or another. Estimating the cost of social security was also necessary in order to ensure that the cost of illustrative plans plus social security would approximate the cost of the current system. Once a benchmark cost target was established, illustrative plans integrated with social security could be specified and analyzed.

1. CRS cost model validation

The validity of the CRS Cost Model was demonstrated by showing that the model would yield results similar to those that would be obtained by OPM.

Using OPM's assumptions, the CRS model produces a total normal cost of 36.14 percent of pay—one percent less than OPM's normal cost of 36.52 percent shown in its September 30, 1982 report. Table C-1 shows that the CRS Cost Model not only yields a total normal cost similar to that reported by OPM, but that the distribution of costs across benefit type is similar as well. Details not available from the 1982 report were estimated using prior OPM reports.

TABLE C-1.—VALIDATION OF CRS NORMAL COST MODEL AGAINST OPM NORMAL COST ESTIMATES OF CSRS, SEPTEMBER 30, 1982

[In percent of payroll]

Benefit	OPM	CRS
Voluntary retirement	20.73	20.61
Nonvoluntary retirement	3.23	3.22
Disability benefits	5.09	4.90
Deferred retirement	0.36	0.39
Postretirement survivor benefits	4.28	4.23
Preretirement survivor benefits	1.07	1.03
Child survivor's benefits	0.21	0.18
Refunds	1.05	1.09
Special benefits	0.46	0.45
Administrative expenses	0.05	0.05
Total	36.52	36.14

2. CRS assumptions

After consultation with other legislative branch agencies, a set of economic and demographic assumptions was selected. Two sets of assumptions may yield very different estimates of plan cost. In any case, predictions about the future are necessarily uncertain. One set of assumptions may be as plausible as another. In this report illustrative plans are compared to each other, rather than on the basis of their absolute cost. The relative cost differences are not as sensitive to the assumptions as absolute costs are. The CRS economic and demographic assumptions yield a benchmark normal cost for the current CSRS of 32.21 percent of pay—less than the cost obtained using OPM's assumptions. The economic and demographic assumptions used for arriving at the current CSRS normal cost were used for estimating costs of all illustrative plans.

a. Economic assumptions.—To project future pay and benefits, some assumptions about interest rates, wage growth, and price growth must be incorporated into the model. It was agreed that social security "Intermediate II-B" economic assumptions would be used throughout the analysis. The II-B assumptions are known widely and are accepted generally as a moderate set of economic assumptions. Because social security is an integral part of the plan alternatives examined, social security assumptions were deemed to be particularly useful, since additional information about social security benefits, costs, and taxes provided by the Social Security Administration (SSA), could be incorporated into the analysis. Social security costs and assumptions were taken from the 1984 Social Security Trustees report. The CRS and OPM economic assumptions are compared in Table C-2.

TABLE C-2.—COMPARISON OF CRS AND OPM ECONOMIC ASSUMPTIONS

[In percent]

Economic assumption	OPM	CRS
Interest	6.0	6.1
Wages	5.5	5.5
Prices	5.0	4.0

There is very little difference between CRS's and OPM's interest and wage rate assumptions, but a fairly large difference in price growth. This difference in prices, however, yields a substantial difference in the *real* interest and wage rate assumptions used by CRS and OPM. Whereas OPM assumes a one percent real interest rate, SSA assumes that interest rates will remain higher relative to prices, with a real interest rate of 2.1 percent. Similarly, the difference in prices assumed by OPM and CRS translates into a difference in the rate of real wage growth—a 0.5 percent per year assumed rate of real growth by OPM, compared to a 1.5 percent rate assumed by CRS.

An assumption related to the overall economic assumptions is the rate of career growth for individuals. If the Federal wage schedules are assumed to grow at 5.5 percent per year, the growth for any individual will be larger because of changes in grade and step. OPM uses a set of career increases that assume a growth in the individual salary over 30 years of about 140 percent. Analysis using the CRS cost model shows that these assumptions predict that there would be substantial increases in the average grade for employees. For instance, the average retiring employee now leaves at GS-11 but the OPM assumption predicts that the average employee in the future will leave as GS-13.

While there has been some evidence that the average grade within the government is slowly growing, it appeared to CRS to be unrealistic to expect that the average employee would retire at GS-13 in the future. Accordingly, CRS substituted a set of assumptions that would assume that the average employee would retire at the same relative position in the grade structure as do current employees.

b. Demographic assumptions.—One important difference between OPM and CRS assumptions is that CRS assumes that future mortality will improve, whereas OPM does not. OPM mortality assumptions are based on a study representing mortality of civil servants in the mid-1970s. In making its projections, SSA assumes that mortality rates will decrease gradually during the next 75 years, so that, on average, mortality in the year 2060 will be 39 percent below its current level. Because SSA's mortality improvement assumption was deemed more realistic than OPM's assumption of no change in mortality, the OPM mortality tables used in the CRS model were adjusted to reflect SSA's presumed 39 percent improvement in mortality. Since new entrants would not be expected to experience the full 39 percent improvement in mortality—because they are already between the ages of 20 to 35, on average, at the time they are hired—only a portion of the assumed mortality improvement was apportioned to the new entrant group. Retirees, disabled retirees, and those withdrawing with vested deferred benefits were presumed to experience most of the assumed improvement in mortality (60/75 of the 39 percent improvement). Those dying in service were assumed to experience a lesser improvement (45/75 of the 39 percent improvement), since, by definition, they die at younger ages.

c. Effects of CRS assumptions on entry-age normal costs.—The effect of introducing CRS economic and demographic assumptions in the entry age normal cost calculation is shown in table C-3. The two major changes were the effect of general economic assumptions and mortality improvements. The economic assumption changes reduced the normal cost by 5.4 percent of payroll. This was largely offset by the increase in costs due to assumed mortality improvements of 4.6 percent of payroll.

Table C-3.—Effects of CRS assumptions on entry age normal cost

	Percent of payroll
Normal cost using OPM assumptions	36.5
Change due to general economic assumptions	−5.4
Change due to mortality improvement	+4.6
Change due to internal salary scale adjustment	−2.0
Differences in computer models	−0.4
Other changes	−1.1
CRS normal cost	32.2

The change in the career growth assumption reduced costs by 2.0 percent of pay. Differences in the computer models produced a difference of .4 percent of payroll. A number of other minor changes resulted in reduction of the normal costs of 1.1 percent of payroll. For instance, CRS assumed that the pay cap on Federal civil service salaries would be continued in the future, but adjusted each year by the assumed rate of increase in the general schedule. This differs from the assumptions used by OPM.

The aggregate result was a normal cost of 32.2 percent of pay. The details of this cost are shown in table C-4 and are compared to the OPM cost analysis.

A comparison of the distribution of benefit costs resulting from the CRS model using OPM and CRS assumptions is shown in table C-4.

TABLE C-4.—COMPARISON OF BENEFIT COSTS UNDER CURRENT CSRS USING CRS AND OPM ASSUMPTIONS AND MODELS

[In percent of payroll]

Benefit	OPM	CRS
Voluntary retirement	20.73	18.95
Nonvoluntary retirement	3.23	2.72
Disability benefits	5.09	4.72
Deferred retirement	0.36	0.38
Postretirement survivor benefits	4.28	3.03
Preretirement survivor benefits	1.07	0.69
Child survivor's benefits	0.21	0.12
Refunds	1.05	1.13
Special benefits	0.46	0.42
Administrative expenses	0.05	0.05
Total	36.52	32.21

3. Estimating the cost of social security

In order to assure that the cost of an illustrative plan plus social security would be roughly comparable to the cost of the current CSRS, it was necessary to estimate the cost of providing social security benefits to a group of newly hired civil servants. For purposes of this study, CRS estimated the cost of social security to Federal employees at 12.12 percent of total payroll.

There are several possible methods for determining the cost to the Federal government of replacing a part of the benefit rights new workers would have earned under the current CSRS, with the rights they will be earning under social security. Three approaches were considered:

a. The "normal cost" of social security.—The Office of the Actuary for Social Security Administration, in projections as of January 1, 1983, estimated the full normal cost (the value at entry into the workforce of life-time workers and survivors benefits as a percentage of total lifetime wages for an actuarially selected sample of new participants) at 13.03 percent of covered (taxable) payroll. Table C–5 presents the SSA analysis of the normal cost.

Table C–5.—Projected normal cost of Social Security as of January 1, 1983 for persons aged 18 to 22 (percent of social security taxable payroll)

Type of benefit	*Normal cost*
Retired worker	9.66
Dependents of retired workers	0.48
Aged wife	0.39
Young wife	0.02
Child	0.07
Survivors	1.42
Aged widows	1.08
Disabled widows	0.01
Child	0.26
Mother	0.06
Parent	0.00
Lump sum death benefits	0.00
Disabled worker	1.21
Dependents of disabled worker	0.09
Wife	0.02
Child	0.07
Total benefits	12.86
Administrative expenses	0.20
Railroad interchange	−0.03
Total	13.03

Source: Social Security Administration.

b. The "average cost" rate.—The 1984 report of the Social Security Trustees shows the average of total system benefits for each year for 75 years to be about 12.95 percent of taxable payroll.[84]

c. The "payroll tax" rate.—The payroll tax is the actual cost of social security to all employers and employees. The average payroll tax over the 75 year period is 12.34 percent of taxable payroll.[85]

The average cost rate is higher than the payroll tax rate because of other sources of income, primarily taxes on social security benefits, that bring the system into actuarial balance. The difference between the normal cost and the average cost rate is attributable to the use of different funding perspectives. The normal cost is the average contribution need prospectively for a new group of employees while the average cost is the calculation of the current year need, for existing beneficiaries. The latter cost is more appropriate in the context of social security financing.

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[84] Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Disability Insurance Trust Funds, 1984. Table 28.

[85] Ibid.

The various estimated costs of social security listed above are stated as a percent of *total covered* payroll. If an employer has employees whose incomes exceed the maximum social security taxable wage limit ($39,600 in 1985), the actual percent of total payroll cost will be somewhat lower. The Federal Government has a relatively high proportion of jobs that pay more than the maximum taxable wage covered by social security.

The cost of social security was estimated by applying the social security tax rates to the new entrant data, and estimating the present value of social security contributions over the civil service work careers of the new entrant group. The average payroll tax rate was determined by taking the present value of future social security taxes as a proportion of the present value of future pay. This cost was determined to be 6.06 percent of payroll. The estimated cost of social security is less than the ultimate tax rate of 6.2 percent because over the course of their careers, the salaries of some Federal workers are projected to exceed the social security maximum taxable wage base. The cost of social security is borne by equal employer and employee contributions, so the total estimated cost of social security is estimated at 12.12 percent of total payroll.

B. SENSITIVITY OF ILLUSTRATIVE PLAN COSTS TO VARIATIONS IN PLAN FEATURES UNDER A COMPARABLE COST FRAMEWORK

The principle of comparable cost guides much of the analysis presented in Chapters 4 and 5 of this report. Comparable cost means that the employer cost of systems presented in this report will be roughly the same. In other words, the entry age normal cost of an illustrative plan plus social security will approximately equal that of the current CSRS.

1. Assumptions

The set of CRS economic and demographic assumptions used to estabish the benchmark entry age normal cost of the current CSRS are fixed throughout the analysis presented in Chapters 4 and 5 of this report. Behavioral assumptions may change from one illustrative plan type to another, depending upon the level and availability of benefits.

a. Voluntary retirement rates.—Three major aspects of the benefit were considered to affect voluntary retirement rates. First, is the benefit reduced? Second, is the benefit offset by social security? Third, is the benefit supplemented before the time social security begins?

The current CSRS provides unreduced voluntary retirement benefits at age 55 with 30 years of service. These benefits increase after age 55 only by service and salary increments. As a result, there are large retirement rates in the first year of eligibility—36 percent of males, and 44 percent of females retire in their first year of eligibility. Under a modified CSRS integrated with social security, social security benefits would not begin until age 62, and even then they would be reduced. If a modified CSRS followed typical private sector practice, the voluntary retirement benefit would be substantially reduced for those who retire before age 62 or age 65. Considerably fewer individuals eligibile to retire before age 62 would be expected to do so.

A benefit that is not offset or reduced before age 62, and is further fully augmented to provide a level of income before and after social security begins, is most comparable to the current CSRS and would be expected to lead to retirement rates close to the current rates. At the other extreme, a benefit that is offset by social security, reduced for full actuarial equivalence, and not augmented would be expected to produce very low rates of retirement at first eligibility.

The effect on retirement rates of any jump in benefits is substantial. A case in point occurred when the CSRS benefit reduction was removed in 1966. The pre-1966 reduction had been very minimal—only one percent per year of service under age 60. This contrasts with actuarial equivalence reductions of 6 to 7 percent per year. Even when this low level of reduction was removed, retirement rates doubled. It could be expected that if there is any discontinuity of benefits, the retirement rates after the discontinuity should be at least double the rates before the discontinuity.

Using the above reasoning, retirement rates were established according to the following criteria:

- Only fully augmented non-reduced and non-offset benefits should have the same behavior patterns as current CSRS.
- Any discontinuity in benefits yields retirement rates that are half the current CSRS rates before the discontinuity point.
- The lowest level of benefits would result in very low rates of retirement.

b. Involuntary retirement.—As noted in earlier discussion, some involuntary retirements may be at the discretion of the individual. Allowing for this, involuntary retirement rates were reduced by half of the current CSRS rates in plans with a discontinuity of benefits before age 62.

c. Disability retirement.—The primary difference in the incidence of disability among a given set of workers results from the definition of disability. A review by Hay Associates, in 1981, found that social security disability rates were 60 percent of the civil service rates for males, and 40 percent for females. Thus, civil service rates were reduced by 40 percent for males and 60 percent for females when social security disability criteria are applied.

d. Withdrawal rates.—Mid-career withdrawal rates were increased for plans offering less attractive retirement benefits than the current CSRS. The CRS model uses 12 separate sets of withdrawal rates for males and females which decline with age and service. For benefits that are actuarially reduced before age 62, withdrawal rates of those with more than 10 years of service were increased to reflect the rates of those who worked from 6 to 10 years. For benefits partially reduced before age 62, withdrawal rates of those with more than 15 years of service were increased to reflect the rates of those who worked from 10 and 15 years.

e. Rates of participation in capital accumulation plans.—The aggregate cost of an employer-sponsored capital accumulation plan depends upon the participation rate and the average contribution for those who do participate. Although not all members of the new entrant group would be expected to participate, an effective average contribution rate for the entire group was derived by taking the product of the expected participation rate and the average rate of contribution. For example, if it is expected that under a certain plan 70 percent of the employees at each salary level will participate, and that the average contribution of participants will be 5 percent of pay, the effective contribution rate of the group would be 3.5 percent of pay.

Although there is no definitive study on the issue of capital accumulation plan participation and contribution, some information is available on overall participation rates and, for employer-sponsored 401(k) plans, the difference in the average contribution between the highest paid one-third and lowest paid two-thirds of employees. These data were used to produce the following actuarial assumptions about contribution rates as presented in Table C–6.

TABLE C–6.—ASSUMED AVERAGE CONTRIBUTION FOR THOSE WHO PARTICIPATE IN CAPITAL ACCUMULATION PLANS

[In percent of pay]

Employer match	Lowest paid	Highest paid
6 percent limit on contributions:		
50 percent	4.00	5.00
100 percent	4.50	5.25
200 percent	5.00	5.50
10 percent limit on contributions:		
50 percent	5.00	7.00
100 percent	6.00	8.00
200 percent	7.00	9.00
No limit on contributions:		
50 percent	6.00	8.00
100 percent	7.00	9.00
200 percent	8.00	10.00

Participation rates were applied to the presumed contribution rates, above, to arrive at average effective contribution rates for different contribution limits and employer matching rates. It was assumed that with a 50 percent employer match, 50 percent of the lowest paid, and 80 percent of the highest paid would participate; with a 100 percent match, 60 percent of the lowest paid and 85 percent of the highest paid; and, with a 200 percent match, 70 percent of the lowest paid and 90 percent of the highest paid. Applying these rates to the above contribution rates yielded the effective average contribution rates used in this report, shown below.

The aggregate rate represents the effective rate of pay that the employee group is assumed to contribute to a capital accumulation plan. For example, a capital accumulation plan with a 6 percent employee contribution limit, and a dollar for dollar (100 percent) employer match would have a potential total contribution value of

12 percent of pay—6 percent from the employee and 6 percent from the employer. As discussed above, it is assumed that not all employees will participate, and that among those who do, not all will contribute the maximum allowed. The aggregate rate indicates that only 3.9 percent of pay is assumed to be contributed by the new entrant group. The employer cost is also estimated to be 3.9 percent of pay. For a similar plan having only a 50 percent employer match, the aggregate employee contribution is assumed to be 3.3 percent of pay, and the employer contribution 1.65 percent.

TABLE C-7.—CRS ASSUMED EFFECTIVE AVERAGE CONTRIBUTION RATES UNDER 401(k) TYPE CAPITAL ACCUMULATION PLANS

[in percent of pay]

Employer match	Lowest paid	Highest paid	Aggregate employee contribution	Aggregate employee contribution
6 percent contribution limit:				
50 percent	2.0	4.0	3.3	1.65
100 percent	2.7	4.5	3.9	3.90
200 percent	3.5	5.0	4.5	9.00
10 percent contribution limit:				
50 percent	2.5	5.6	4.6	2.30
100 percent	3.6	6.8	5.7	5.70
200 percent	4.9	8.1	7.0	14.00
No contribution limit:				
50 percent	3.0	6.4	5.3	2.65
100 percent	4.2	7.7	6.5	6.50
200 percent	5.6	9.0	7.9	15.80

2. Design of backdrop plans used in chapter IV

In order to analyze the effect of variations in plan features upon total plan and benefit costs, two "backdrop" plans that included social security were specified. One plan was based on a 50 percent offset of social security and the other was an add-on plan.

The backdrop plans were specified to reflect current CSRS provisions when practical, while being integrated with social security. The plans use the same salary base for calculating benefits and the same vesting conditions as the current CSRS. In cases where there was no clear method for integrating CSRS benefits with social security that would replicate current CSRS benefits, private sector practice was generally followed. Under the backdrop plans no child survivor benefits were provided since social security child survivor's benefits generally exceed CSRS child survivor's benefits, and private sector plans typically do not provide such benefits. Similarly, 100 percent of social security disability benefits were subtracted from current CSRS disability benefits in cases where social security disability conditions would be met. When only the civil service definition of disability applies, the current CSRS benefit was provided. Employee contributions in the backdrop plans were limited to the difference between the current CSRS tax rate of seven percent of pay, and the social security tax rate (6.2 percent of pay in the outyears) on earnings below the social security maximum taxable wage base. Employee contributions were set at seven percent of pay on all earnings above the maximum table wage base. In each backdrop plan, employee contributions to the pension plan plus social security equals seven percent of pay, the same as the current CSRS. Under the backdrop plans it is assumed that all workers elect deferred retirement benefits as opposed to refunds. Under ERISA, the refund must at least equal the value of the deferred benefit. Given the low rate of employee contributions under the backdrop plans, the present value of the deferred benefit would almost always exceed the value of the contribution for vested employees. As a result, all benefits to those withdrawing early are shown in the backdrop plans as deferred benefits, although some might choose to take a refund equal to the present value of the deferred benefit.

The normal cost of benefits for the backdrop plans is compared to the current CSRS in table C-8 below. Note that the total plan cost in the backdrop plan of 20 percent of pay is less than the current CSRS. The individual benefit value is typically less for the backdrop plans than for the current CSRS. When the cost of social security (12 percent of pay) is added to the basic plan cost of the backdrop plans, the backdrop retirement system costs equal the current CSRS cost of 32 percent of pay.

TABLE C-8.—BENEFITS COSTS UNDER CURRENT CSRS AND BACKDROP PLANS AT COMPARABLE COST

[In percent of payroll]

Benefit	Backdrop plans		
	CSRS	Add-on	50 percent offset
Voluntary retirement	18.95	12.21	11.91
Nonvoluntary retirement	2.72	1.98	1.90
Disability benefits	4.72	2.25	2.62
Deferred retirement	.30	1.21	1.08
Postretirement survivor benefits	3.03	1.84	1.84
Preretirement survivor benefits	.69	.37	.35
Child survivor's benefits	.12	0	0
Refunds	1.13	0	0
Special benefits	.42	.25	.24
Administrative expenses	.05	.05	.05
Total pension plan	32.21	20.16	19.99
Total from social security	(1)	12.12	12.12
Total system cost	32.21	32.28	32.11

[1] Not available.

In addition to assuring that total employer cost is comparable, an effort was made to assure that the basic distribution among benefits in illustrative plans would be the same as under the current CSRS. The distribution of benefits under the backdrop plans are shown in table C-9, below. For example, roughly 60 percent of all benefits provided under current CSRS are in the form of the main retirement benefit. As can be seen in table C-9 below, the backdrop plans give roughly the same proportion of benefits going to the main retirement benefit as does the current CSRS. Even though benefits provided under an illustrative plan may be about the same as the current CSRS, total benefits may reflect the current CSRS, because the benefit distribution under the plan and the benefit distribution under social security are different.

TABLE C-9.—COMPARISON OF BENEFIT DISTRIBUTION UNDER CURRENT CSRS AND BACKDROP PLANS AT COMPARABLE COST

[In percent]

Benefit	CSRS	Backdrop plan	
		Add-on	50 percent offset
Voluntary retirement	58.8	[illegible]	59.6
Nonvoluntary retirement	8.4	9.8	9.8
Disability benefits	14.7	11.2	13.1
Deferred retirement	1.2	6.0	5.4
Postretirement survivor benefits	9.4	9.1	9.2
Preretirement survivor benefits	2.1	1.8	1.8
Child survivor's benefits	0.4	0.0	0.0
Refunds	3.5	0.0	0.0
Speical benefits	1.3	1.2	1.2
Administrative expenses	0.2	0.2	0.2
Total pension plan	100.0	100.0	100.0

C. DISTRIBUTION OF BENEFITS AND COSTS IN CSRS AND A MODIFIED CSRS INCLUDING SOCIAL SECURITY

While total system cost of a modified CSRS that includes social security may equal that of the current CSRS, the distribution of benefits under the two systems differ. Table C-9 shows that 58.8 percent of the current CSRS income is used to provide full career retirement benefits and 13.1 percent to provide involuntary retirement and withdrawal benefits. The remaining 28 percent is allocated to the cost of other benefits—primarily disability and survivor benefits. Similar analysis of the total costs and benefits of the backdrop plan and social security shows a different distribution. In this analysis approximately 0.5 percent of payroll is distributed outside the system; only 52.7 percent of the system's funds are used to provide full career benefits. The funds used to produce full career retirement benefits have dropped from 18.95 percent under the current CSRS to 16.96 percent of payroll under a modified CSRS that includes social security. As a result, the average replacement rate at retirement in the backdrop plan is lower than under the current system since some of the money that had been allocated for benefits to full career retirement benefits is now being allocated for benefits to other individuals.

A complete investigation of the distribution effects of social security in the Federal workforce goes beyond the scope or purpose of this study. However, some estimate of the distributional effects is attainable through analysis of CRS cost model results, combined with SSA cost data. The value of social security retirement benefits attributable to Federal civil service was estimated for three groups—full career workers, involuntary retirees, and those withdrawing early—using the CRS cost model. Other social security benefits were not directly estimated from the model. Since social security is not directly related to service, social security attributable to Federal civil service, and that attributable to a worker's non-Federal career, was estimated. Social security benefits were projected based on full career service, and the portion attributable to Federal civil service by the ratio of the present value of salary from the time of entry into Federal employment to the present value of total career salary. CRS cost model estimates of these benefits are shown in Table C–10 below.

Table C–10.—Estimated normal cost of Social Security retirement benefits to Federal workers based on CRS cost model

[In percent of payroll]

Type of termination	*Cost*
Full career retirement	4.99
Involuntary retirement	0.67
Withdrawal	2.25
Total	7.91

Ancillary benefits provided to Federal workers under social security were estimated by reconciling differences between SSA cost data and CRS cost model results. It was assumed that Federal workers would receive the same share of ancillary benefits, relative to full career retirement benefits, under social security as do other workers. SSA includes the post-age 65 cost for disability benefits as part of the 9.66 normal cost of retirement benefits (Table C–5) while the CRS cost model allocates these costs to disability benefits. In order to provide a comparable base, the proportion of social security retirement benefits attributable to disability benefits paid after age 65 was estimated and subtracted from the 9.66 normal cost of social security retirement benefits. The amount subtracted from the social security retirement benefit was estimated from the CRS cost model, by applying the ratio of the full term disability benefit under the backdrop plan to the disability benefit payable before age 65. This ratio was estimated at 1.65; in other words, for every dollar of disability benefits paid before age 65, $0.65 is paid after age 65. Applying this ratio to the social security disability cost of 1.21 percent (Table C–5) yielded an estimate of a normal cost of .79 percent of pay for social security disability benefits after age 65. This value was then subtracted from the social security retirement benefit of 9.66 percent and added to the social security disability benefit of 1.21 percent. Consequently, social security full career retirement benefits were estimated to equal 8.87 percent of pay, and social security disability, 2.00 percent of pay.

Based on the adjusted data, social security ancillary benefits cost about 3.99 percent of pay (12.86–8.87), or about .45 of the retirement benefit (i.e., 3.99/8.87). Applying this ratio to the estimate of social security benefits for Federal workers, shown in Table C–10 above, yields an estimated total value of ancillary social security benefits to Federal workers of 3.56 percent of pay (i.e., .45 x 7.91).

From the above analysis, the total value of social security benefits to Federal workers is estimated at 11.47 percent of pay. Adding the 0.20 percent for administrative expenses yields an estimated total cost of 11.67 percent.

The total social security benefit value of 11.67 percent can be used to estimate the reallocation of benefits away from Federal employees. Since the average social security normal cost on total payroll, including pay above the social security maximum taxable wage base, is 12.12 percent of pay, civil service employees will receive benefits worth .45 percent of pay less than their contributions. This loss was an expected result of the fact that civil service employees have different demographic patterns and salary history patterns from the non-civil service employees. Because of the implicit tilt in social security toward the lower paid employees, some diversion of the money would be expected.

Examination of the combined cost and benefits of the backdrop plan with social security, and the current CSRS, shows that the backdrop plan allocates benefits differently than the current CSRS (see Tables C-11 and C-12, below). For example, full career benefits are substantially less under the backdrop plan plus social security, than for the current system. In particular, the current system allocates 58.8 of the total cost to full career retirement benefits, compared to 59.6 percent under the backdrop plan; however, the social security system only allocates about 41.2 percent of its total cost in the form of full retirement benefits. The result is, that under the backdrop pension system only 52.7 percent of cost of the plan is distributed in the form of full retirement benefits, or about a 10.5 percent decrease in value compared to the current system. Part of the loss in value for full career workers is made up by those who leave before drawing a full career benefit; under a backdrop plan integrated with social security, these workers receive benefits that are about 40 percent higher than the current CSRS. Similarly, the integrated backdrop plan provides disability and survivor benefits of slightly lesser (−1.7 percent) value than the current system. About 1.4 percent of the current system's value is distributed in the form of social security benefits to other workers in the economy.

TABLE C-11.—NORMAL COST COMPARISON OF BACKDROP PENSION SYSTEM AND CURRENT CSRS

[In percent of pay]

Feature	Backdrop pension system			Current CSRS	Change	Percent change
	Backdrop plan	Plus Social Security	Equals total			
Full career retirement	11.97	4.99	16.96	18.95	−1.99	−10.5
Involuntary/Withdrawal	3.00	2.92	5.92	4.23	+1.69	+40.0
Other benefits	5.12	3.76	8.88	9.03	−0.15	−1.7
Distribution out of system	0.00	0.45	0.45			
Total	20.09	12.12	32.21	32.21	−0.45	−1.4

TABLE C-12.—DISTRIBUTION OF BENEFITS UNDER BACKDROP PENSION SYSTEM AND CURRENT CSRS

[In percent]

Feature	Backdrop pension system			Current CSRS
	Backdrop plan	Plus Social Security	Equals total	
Full career retirement	59.6	41.2	52.7	58.8
Involuntary/Withdrawal	14.9	24.1	18.4	13.1
Other benefits	25.5	31.0	27.6	28.0
Distribution out of system	0.0	3.7	1.4	0.0
Total	100.0	100.0	100.0	100.0

V. THE REPLACEMENT RATE MODEL

This study uses replacement rates to compare the generosity and distribution of benefits among retirement systems. The CRS developed a second computer-based model (the cost model being the other) capable of estimating earnings replacement rates for a variety of retirement system designs, under economic and actuarial assumptions specified by the user. The model can compute replacement rates based on either pre-tax (gross) or post-tax (net) income.

Numerous issues surround replacement rate analysis, including: Why are they good analytic measures of pension benefits? Should the rate measure replacement of an employee's final salary, an average of salary over a long time period, or should it be based on consumption, rather than income? Is gross or net replacement rate the better measure, and if net, how should it be calculated?—to cite just a few.

The section begins with a discussion of the microeconomic foundations of replacement rate analysis. A key point is the extent to which the practical application of replacement rate analysis depends on available information and specific research questions. The next section describes the decision guideposts used in the development of the replacement rate model. In some sections the study uses net replacement rates, in other gross replacement rates. This discussion focuses on the two key questions: How is preretirement income measured? How is postretirement income measured? The section concludes with a brief comparison of the cost vs. replacement rate models.

A. THE REPLACEMENT RATE CONCEPT

1. Microeconomic foundation

Economic theory uses the "life cycle hypothesis of savings" to explain how individuals allocate the resources available to them during their lifetimes. Individuals are assumed to maximize "utility," the satisfaction derived from consuming their lifetime resources, subject to the constraint that they can consume no more than the total resources available over a lifetime. Over an individual's lifetime, there exists an optimal rate of consumption and saving. The rate of savings accumulates capital during the individual's work life so that the individual will have enough income during retirement to consume at a level consistent with his optimal lifetime rate of consumption.[86]

A replacement rate is one way of studying the allocation of resources available to an individual for consumption over his lifetime. In its general form, it is the percent obtained from the ratio of postretirement consumption to preretirement consumption. Analysts have translated this into the assumption that retirees should be able to consume about as much in retirement as they did in a recent period just before retirement. Since good data measuring consumption are usually unavailable, analysts resort to income as a proxy. Consequently, a good working definition of a replacement rate is the percent obtained from "... a ratio of some measure of postretirement income to some, not necessarily the same, measure of preretirement income." [87] Boskin has noted its limitations, however, because it does not account for the ability to borrow against future income, dissave, or gain imputed income from consuming capital goods, such as owner-occupied homes.

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[86] The classic article on this theory is by Albert Ando and Franco Modigliani, The "Life Cycle" Hypothesis of Saving: Aggregate Implications and Tests. For an excellent general discussion, see Alicia Munnell, The Economics of Private Pensions, pp. 62-92.

For every replacement rate, there is an implicit lifetime rate of savings necessary to accumulate enough capital to provide the income that yields that replacement rate. Thus, if one could determine the optimal savings rate for an individual that is consistent with a rate of consumption that maximizes his lifetime "utility," he could calculate an optimal replacement rate. However, this is not possible in evaluating pension policy, because the unavailability of the data necessary to calculate optimal individual savings or replacement rates. Moreover, even if the data were available, the promotion of social welfare would require political judgments about the distribution of pension benefits.

2. An example of lifetime resources, replacement rates and savings rate

Lifetime resources as depicted in Figure C-3 are based on the following assumptions:

a. The present time is the first day of retirement.

b. The individual's final annual salary after 40 years of work was $30,000.

c. His/her salary grew at a constant rate of 5.5 percent per year.

d. The rate of inflation was 4.0 percent over his/her worklife and will be 4.0 percent during his/her retirement.

e. He/she has 15 years left to live.

f. There is no uncertainty about the future, no social security, no pension, and no taxes.

g. He/she has saved at a constant rate for 40 years so that he/she will have a replacement rate of 60 percent of the final year's salary providing $18,000 for 15 years.

h. He/she has no other assets.

i. He/she does not want to bequeath an inheritance to his survivors.

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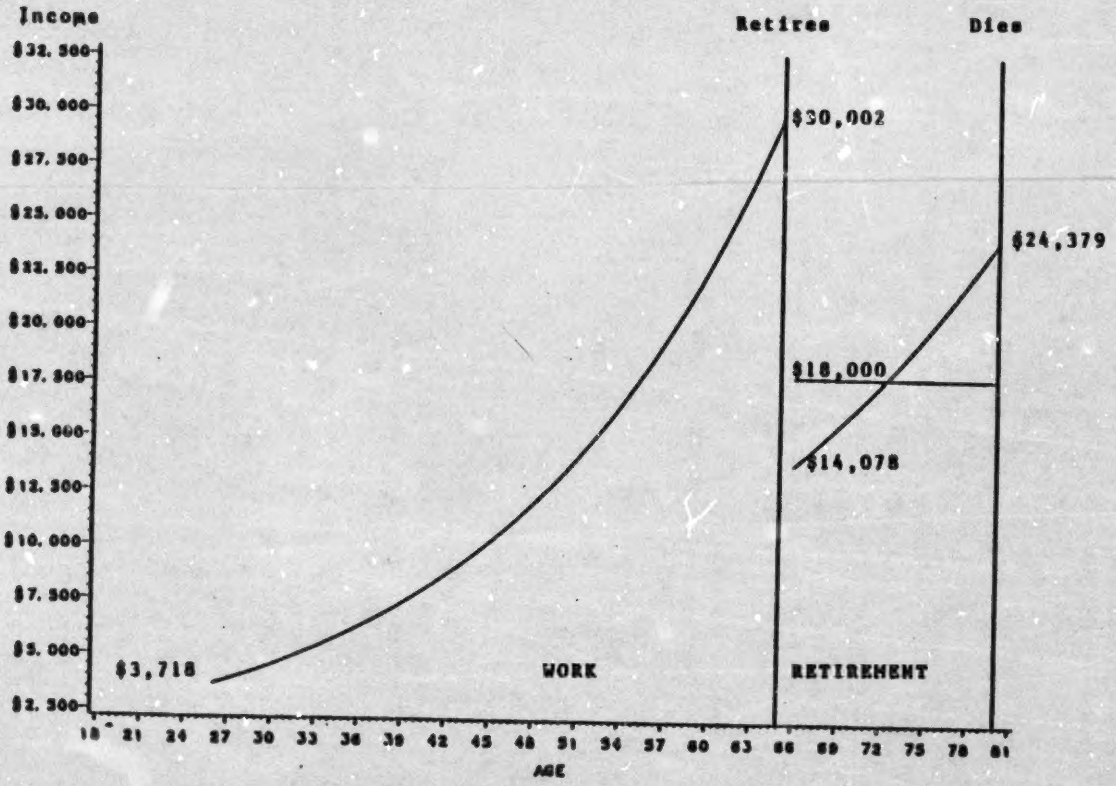
[87] Boskin, Michael J., and John B. Shoven, Concepts and Measures of Earnings Replacement During Retirement, p. 2.

FIGURE C-3. An Example of a Lifetime Income Profile; Final Salary—$30,000, at age 65 with 40 years of service



The chart shows that if a beginning salary of $3,718 grew at 5.5 percent per annum, the final salary after 40 years would be $30,000.[88] The horizontal line during retirement at $18,000 shows that a replacement rate of 60 percent of final salary would mean $18,000 per year for the remaining 15 years of life. The nonlinear plot intersecting the horizontal line near age 73 illustrates an annuity indexed for 4.0 percent inflation with the same present value as the $18,000 per year payments for 15 years. Note that in order to hold the real value constant, it begins lower than $18,000 at $14,078 and ends much higher at $24,379.

This example illustrates two points is: (1) The selection of a particular replacement rate implicitly determines the constant lifetime savings rate necessary to finance it; and (2) the selection of different measures of postretirement and preretirement incomes results in different replacement rates for the same lifetime resources.

The lifetime savings rate necessary to finance $18,000 per year for 15 years is the percent of income each year that must be set aside to accumulate the present value of the retirement income. This savings rate is the percent obtained from the ratio of the income from 40 years of work ($1,343,298), which is 12.9 percent.[89] The relationship between the present values of pre- and postretirement incomes is analogous to the normal cost.

If one changes the measures of postretirement and preretirement income, very different replacement rates can result. Consider two different replacement rate concepts applied to the lifetime resources depicted in Figure C-3. The assumed replacement rate was 60 percent of final salary, which yielded $18,000 in the first year of retirement. Suppose instead that the replacement rate is the percent obtained from the average annual present value of retirement income ($173,684/15=$11,579) to the average annual present value of income during work ($1,343,298/40=$33,582), or 35 percent. Which one is the correct replacement rate, 60 percent or 35 percent? Unfortunately, there is no way to choose between them. The choice depends on one's subjective judgment about the preretirement income against which he would compare postretirement income. Analysts usually compare postretirement income to some measure of preretirement income during a recent period, such as an average of the last 3 or 5 years, or an individual's final year's income.

B. DECISION GUIDEPOSTS

The preceding discussion showed that consumption, both before and after retirement, forms the theoretical basis of replacement rate analysis. Good data on consumption, especially in the future, are not available. We were therefore constrained to use a proxy income in our replacement rate model.

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[88] All compounding was done annually.

[89] The present value of retirement income of $18,000 per year for 15 years was obtained by discounting it for 15 years at 6.1 percent per year. The present value of preretirement income was obtained by applying the 6.1 percent interest to the income stream over the 40 year worklife.

Consistency dictated that the standard set of demographic, economic and policy assumptions be used in the replacement rate model. These assumptions are detailed elsewhere.

The CRS assumptions limit the replacement rate model in certain ways. For example, the usefulness of net replacement rates calculated in the far future (i.e., 2030) are severely limited. The combination of wage and price growth assumptions combined with the decision to adhere to current legislative policy (in this case, tax policy) put most individuals into the high marginal tax brackets in the future. The effect is to minimize the distributional differences between gross and net replacement rates, thereby making the net rates redundant.

Finally, the analytic design constrained the development of the replacement rate model. An early decision was that the study would not assess the adequacy of retirement system benefits. Instead the measure of benefits, replacement rates, is used to compare the generosity and distribution of pension benefits among alternative retirement systems. Therefore, decisions such as "should work related expenses be deducted from preretirement income" or "should the differences in out-of-pocket housing costs between retired and nonretired persons be considered" were not part of the replacement rate development process.

C. DEVELOPMENT OF THE REPLACEMENT RATE MODES—THE MEASUREMENT OF PRERETIREMENT INCOME

Two major types of replacement rates are used in this report: (1) gross replacement rates; and (2) net replacement rates. Gross replacement rates compare the gross income before retirement to the gross income after retirement. Thus taxes and other expenses are not deducted before the replacement rate is calculated. With net replacement rates an attempt is made to measure the pretax salary of record and the pretax retirement benefit. Net replacement rates measure aftertax, "take home" income. Even though they represent a more complete measure, net replacement rates require more data to perform calculations.

This study of salary trends among Federal employees used reliable data from the Office of Management and Budget (OMB) regarding Federal workers' salaries, promotions and retirements. The study had to make certain assumptions about Federal workers' tax deductions in order to generate net replacement rates.

In the latter part of this analysis, the study considers a group of workers who begin their careers after social security coverage of Federal workers was enacted, and who reach retirement in the next century. To estimate replacement rates into the next century (i.e., 2030), projections were made assuming an average wage growth of 5.5 percent annually and price assumptions, used to project the tax brackets, of 4.0 percent annually. This results in the vast majority of the workforce being placed in the highest tax brackets after a number of years. The indexing of tax brackets to prices is reflected in current laws. Action would have to be taken to maintain the relative parity between real wage growth and taxes in the future.

While it is beyond the scope of this analysis to project legislative changes over the next 30 to 50 years, it would be misleading to present net replacement rates based on assumptions that placed the vast majority of workers in the highest tax bracket. Given these constraints, analysis in the later time period, 2030, uses only gross replacement rates.

D. DIFFERENT TYPES OF REPLACEMENT RATES FOR DIFFERENT TYPES OF ANALYSES

In Chapters 2 and 3, comparisons were made between the current Federal civil service, the private sector and State and local government retirement plans. Replacement rates were used to determine the difference between a private, State or local retirement plan for a current Federal worker. For this analysis, the model used information that closely represented what a current worker retiring in the year 1985 would experience.

In Chapters 4 and 5, comparisons were directed toward different types of retirement plans under which *new* Federal workers might find themselves. The year chosen for these new workers to retire was 2030. This year allowed for full careers to be completed under the new system; i.e., with Federal workers under social security. It also allowed changes in the social security normal retirement age to be in effect fully. The Social Security Amendments of 1983 set down provisions for the retirement age for *unreduced* benefits to rise slowly in the early part of the next century from ages 65 to 67. By 2030, this transition will be complete and the retirement age for receiving social security without any reductions will be age 67.

Other than the social security retirement age, interest rate assumptions varied between the 1985 and 2030 replacement rate models. For someone retiring in the year 1985, historical interest rates are available for the past 30 or 40 years. For someone retiring in the year 2030, the higher than average interest rates typical of the last 10 to 15 years would probably not apply. The best data available for these workers is the social security II-B long range assumption of 6.1 percent.

E. OVERVIEW OF THE REPLACEMENT RATE MODEL

The replacement rate model takes information on an individual worker and calculates estimated salaries prior to retirement and benefits afterwards, and compares the two estimates by calculating a replacement rate. Put in simplest terms, the model projects a preretirement income, a postretirement income, divides the second by the first and multiplies by 100.

To project the information necessary for the calculation, several preliminary steps must be taken. First, it is necessary to build a salary history for the hypothetical worker under study. To do so, two basic pieces of information are necessary: (1) the pattern of promotions the worker is likely to experience and (2) the pattern of cost-of-living adjustments (COLAs) or other salary increases not associated with promotions the worker is likely to experience.

To use an example from the Federal civil service, the first component reveals how likely a GS-9, Step 1 is to be promoted to GS-9, Step 2 or GS-11 in any particular year and examines the pay percentage increase that represents. The second component shows how much more the Federal civil service is paying a GS-9, Step 1 worker from one particular year to the next. Given these two components, the rate of salary growth can be traced from one year to the next throughout a worker's career.

The data used to construct these two components came from a variety of sources. Information for the first component, patterns of promotion, was provided by the Office of Personnel Management (OPM). Average annual percentage increases were provided by OPM based on an employee's age. In using the OPM estimates, it became clear that the OPM figures generated average final salaries well beyond the actual average final salaries found in the Federal work force. The OPM estimates generated average final salaries of about $38,000 for 1985. Actual average final salaries have been in the $28,000 to $30,000 range in the last few years. New estimates were generated by Hay-Huggins and Associates that were based upon the number of years an employee had with the government, rather than the employee's age. These estimates brought average final salaries back to the $28,000–$30,000 range.

The second component, average wage growth, came from actual historical data and the social security II–B long range assumptions. Actual data on wage growth in the Federal workforce was available to estimate 1985 replacement rates. Social security II–B long range assumptions were selected for the 2030 replacement rates. These assumptions conform to those used in the CRS cost model analysis.

Steps also can be taken to determine an individual's tax status. Net replacement rates can be calculated if a reasonable estimate can be made of tax liabilities pre- and post-retirement. Using tax rates and tax tables from the Internal Revenue Service (IRS), the model estimates the tax bracket and thus tax liability of the worker by using the salary history. It takes into consideration whether the worker is married or single.

Certain assumptions were made about what percentage of the taxpayer's salary would be itemized on the individual tax return because little comprehensive or reliable data on itemization is available. The Joint Economic Committee estimated itemization rates at roughly 20 percent of adjusted gross income. Although a rough measure, it was considered the best available.

In building a hypothetical net income, other expenses can be reasonably estimated. Current Federal workers contribute 7 percent to the pension plan; new Federal workers and other workers pay social security taxes. Medicare taxes are paid by all workers. Estimates of the average amount of State and local taxes are based on Federal tax liability; i.e., 19.2 percent. In addition, many pension plans have employee savings plans such as thrift plans or 401(k) plans. Using the specifics of an individual plan, estimates of the amount of contribution or income deferred is calculated by the model.

Although information is available about itemization rates, average State and local taxes, and a number of other pieces of information necessary to calculate net income, estimating net income still is a more tenuous process than estimating gross income.

The model proceeds along parallel lines when estimating retirement income. Tax liabilities must be calculated taking into account the advantages the IRS code offers the elderly. Additional deductions and tax credits are added to the calculation at the appropriate ages. Tax brackets are indexed and new taxes of social security benefits included. Cost-of-living adjustments are calculated to indicate how well the benefit keeps up with inflation.

The results to this point provide an estimated net and gross salary and a net and gross pension benefit at different points in time after retirement. Still, other forms of income after retirement can be estimated. Social security benefits are available at age 62. The worker's salary history has been projected throughout a work career with the current employer. If additional assumptions are made regarding a work history prior to working for the current employer and possible employment after leaving the current employer, the social security benefit can be calculated. With information on an employee's full work record, a social security benefit can be estimated using the SSA's benefit formula.

Also, it was noted during the discussion of salary deductions that many employers provide savings plans, such as thrift plans or 401(k) plans. The hypothesized deductions for these plans already have been taken out of the preretirement income estimates, so the benefit should be added to the postretirement income. Using information about the amount of contribution to such a plan, any additional employer contribution and prevailing interest rates, the model calculates the dollar amount that would be available to the worker at retirement. With additional information and assumptions about interest rates after retirement and the average length of time a worker lives after retirement, an annuity is calculated.

An annuity calculation determines an annual benefit based upon: (1) the size of the lump sum dollar amount; (2) the amount of interest the lump sum will continue to earn; and (3) the number of years for which the employee wishes to pay the benefit. The notion underlying an annuity is that the lump sum should provide a benefit that will last the rest of the retiree's life. At the same time, the retiree does not wish to live only on the interest and thus gain little from savings accrued during his or her lifetime; thereby leaving the entire lump sum to the next generation. Regular payments represent a combination of both interest and principal. The combination of interest and principal are designed in such a way that after a number of years, the principal or lum sum will be exhausted.

These calculations are flexible and take into account different options an employee might desire. The benefit can be designed so it will grow by a certain percentage each year. This allows the employee to construct his or her own cost-of-living increases during retirement. The employee can design a short-term benefit for only a few years. An employee may wish to retire before being eligible for social security; an employee could retire at age 55 and use the savings plan to construct a benefit that would be paid out over the 7 years until age 62.

To summarize, the model can estimate income levels before and after retirement from various sources and at different points in time. The model produces these estimates both in terms of gross and net replacement rates and breaks them out into their component parts; e.g., pension, social security, savings plan. It estimates replacement rates for married and single employees, taking into account differences in tax treatments and benefit levels. It does this under a large number of different circumstances and for a wide variety of sample workers.

F. SIMILARITIES/DIFFERENCES BETWEEN THE COST MODEL AND THE REPLACEMENT RATE MODEL

The cost model discussed above and the replacement rate model being discussed here have a number of similarities, but provide a different analytic perspective when applied to the same plan.

The cost model estimates the large system-wide effects of a retirement plan. The normal cost reflects the best estimate of what a retirement plan will cost taking into account the employees under the plan from the day they start work through the day they retire and until their deaths. The analysis is done at a macro level.

In contrast, the replacement rate model estimates the dynamics of the retirement plan on a single individual. It follows one worker with a particular work history from the day he or she begins work until the date of death. The analysis is done on a micro level.

The two models study the same subject—retirement plans—yet apply different focuses and yield different types of measures of the retirement plan under analysis. Both apply the same retirement provisions. Both models apply the same sets of assumptions, although somewhat differently in certain circumstances.

The economic assumptions are also the same between the cost and replacement rate model. Interest rate, salary growth and inflation assumptions are identifical. Demographic and behaviorial assumptions are the same; however, they are used in different ways. In the cost model, assumptions are used as probabilities; e.g., the probability of workers retiring, quitting, or becoming disabled. The replacement rate model uses the assumptions to choose the particular individual careers it will model based on these assumptions. Rather than showing a net drop in the number of active workers systemwide at age 55 reflecting the fact that retirement rates are high at age 55, the replacement rate model simply chooses an individual who meets the service requirements for retirement at age 55 and analyzes the generosity of the retirement plan, relative to final earnings.

Asssumptions are handled differently between the cost and replacement rate models when dealing with savings plans; e.g., 401(k) plans. The cost model, as discussed previously, considers possible savings rates for both the employer and employee, makes an estimate of system wide participation and calculates the estimated system-wide normal cost. An example would be a plan that offers a 50 percent employer match for each dollar an employee saves and permits an employee to save up to 6 percent of his/her gross salary. If 100 percent of the employees participated fully, the cost would be 9 percent of pay—6 percent from employees and 3 percent from the employer. Of course, not all employees will participate and even those who do will not necessarily participate up to the full 6 percent.

To obtain participation rates, actuarial estimates were made for each of the different combinations of matching formulas by Hay-Huggins and Associates. Given the above example with up to a maximum savings rate of 6 percent, the Hay-Huggins estimate was 55 percent participation. That estimate incorporates both components of participation; whether or not an employee participates, and if so, to what degree. The 55 percent participation estimate does not mean that only 55 percent will participate. Instead, it means that although a higher percentage of employees may be participating, not all will be participating fully.

By contrast, the replacement rate model deals with individual workers rather than the entire group of workers. Typical hypothetical workers are used to represent the type of workers most likely to be found in the workforce. In this situation, any one of these typical workers could participate fully, not participate at all, or participate at some level in between.

Given this continuum of possible participation rates, repalcement rates are presented showing the two extremes—zero participation and full participation. This sets the boundaries of what an empolyee could do with a savings plan should he or she decide to participate. When examining the graphs and tables presented in this study, it is necessary to recognize that while the replacement rate data sets two poles or extremes of what a savings plan can do for a particular hypothetical individual, it does not make any assumptions whether that individual or type of individual would participate or to what degree.

In those parts of this report in which net replacement rates are presented, the reader also should be aware of the interactions between different components of retirment income. Usually, retirement income has been presented in three components: Pension income, social security income and savings plan (401(k)) income. In the gross replacement rates, each component stands on its own. Whether or not an employee participates in a savings plan has no effect on the other two replacement rates. However, this relationship does not hold for net replacement rates. When examining a table showing replacement rates for an employee who fully participates in a savings plan, the net replacement rate at zero participation can not simply be subtracted because the aftertax pension and social security benefits would change in the numerator and the aftertax preretirement salary in the denominator also would change. If the employee had not participated in a saving plan, his or her total adjusted gross income after retirement would be smaller by the amount of the benefit from the savings plan. Given a lower total income, the individual's tax bracket would almost surely be lower.

With the individual being in a lower tax bracket the amount of tax being paid on his or her pension and social security benefits drops, resulting in a higher numerator in the net replacement rates for these benefits. Of course, the increase in the replacement rate may not be as large as might be expected. While retirement income on the other two benefits increases due to an enhanced tax situation, the total preretirement income (denominator) of the worker will increase as well, because his/her income will not have the savings plan contribution deducted from salary.

While the replacement rate and cost models have many common elements and examine the same set of retirement plans, they seek to answer different questions. The two can be used in conjunction to study and design retirement plans with certain characteristics. In this study, the major concern has been to maintain comparable system-wide cost. This has been done by using the cost model to estimate the normal cost of a particular set of benefits. Once an initial normal cost estimate was made, the accrual rate of the benefit formula was adjusted either up or down until the model estimated a normal cost as close to the comparable cost figure as possible. This technique allowed for the comparision of a variety of benefit packages while controlling for cost.

The accrual rates resulting from the cost model were then used in the repalcement rate model to allow analysis of the relative generosity of the plan on particular types of individuals. This process also can be applied in reverse. In designing a retirement plan, the levels of desired postretirement income can be specified first. The replacement rate model can determine the accrual rate needed to provide a particular replacement rate. The accrual rate can be used in the cost model to provide an estimate of the cost of providing a desired postretirement income level.

APPENDIX D: TABLES

SECTION I

The tables in Section I show replacement rates for the representative private sector and State government pension systems identified in Chapter 2 and discussed in Chapter 3. Both representative private sector plans integrate their benefit formulas with social security; the two State plans compute benefits independently of social security. Because major private sector companies usually offer a capital accumulation plan in addition to the basic defined benefit pension plan, replacement rates in this appendix include the effects of a capital accumulation plan as if it had been offered and employees had participated fully during their working years.

Table D–1 shows the change in *net* replacement rates over time for single workers retiring in 1985 under the representative plans at age 55 with 30 years service (table D–2 shows the same information for married workers). This may be compared to what workers with similar salaries and work histories would receive under the current CSRS. These two tables illustrate the change in replacement rates occuring over time for workers choosing early retirement. Replacement rates are shown at the time of retirement, at age 58 when the contributory pensions would be fully taxable, at age 62 when retirees would first become eligible for social security benefits, and at age 80 when the retirement benefits would have been subject to postretirement inflation.

Tables D–3 through D–12 show just *gross* replacement rates at the time of retirement for both single and married workers retiring at age 55, 62, and 65 with different amounts of service.

TABLE D–1.—CHANGE IN NET REPLACEMENT RATES OVER TIME FOR SINGLE WORKERS RETIRING IN 1985 AT AGE 55 WITH 30 YEARS SERVICE

	$20,000	$30,000	$45,000	$55,000	$65,000
CSRS:					
At retirement	69.9	71.8	76.0	78.7	81.1
At age 58	61.3	62.8	64.5	65.5	66.3
At age 62	61.3	62.8	64.5	65.5	66.3
At age 80	67.0	64.8	65.5	66.4	67.1
Private 1:					
At retirement	24.0	26.0	28.4	29.8	30.9
At age 58	22.0	23.9	26.0	27.1	28.1
At age 62	45.5	43.2	39.7	38.1	37.2
At age 80	39.1	36.8	32.8	30.7	29.2
Private 1A:					
At retirement	68.1	71.6	74.2	75.0	75.7
At age 58	60.5	63.7	66.4	67.3	68.0
At age 62	81.0	79.4	73.7	71.7	70.7
At age 80	59.9	56.2	50.6	48.7	47.6

TABLE D-1.—CHANGE IN NET REPLACEMENT RATES OVER TIME FOR SINGLE WORKERS RETIRING IN 1985 AT AGE 55 WITH 30 YEARS SERVICE—Continued

	$20,000	$30,000	$45,000	$55,000	$65,000
Private 2:					
At retirement	22.5	24.7	26.4	27.2	28.0
At age 58	20.5	22.7	24.1	24.8	25.5
At age 62	44.1	42.1	37.9	36.0	34.8
At age 80	38.2	36.0	31.6	29.3	27.7
Private 2A:					
At retirement	66.5	70.3	72.2	72.7	73.1
At age 58	59.1	62.4	64.5	65.0	65.6
At age 62	79.7	78.3	72.3	69.7	68.5
At age 80	58.9	55.5	49.4	47.2	45.9
State 1:					
At retirement	77.9	81.4	85.4	87.5	89.5
At age 58	65.8	67.5	68.7	69.0	69.3
At age 62	91.9	89.0	81.3	79.1	77.5
At age 80	82.5	77.7	72.7	78.2	68.8
State 2:					
At retirement	27.7	28.9	30.2	30.9	31.6
At age 58	25.8	25.8	25.9	26.1	26.5
At age 62	51.1	46.9	41.3	38.9	37.4
At age 80	47.4	43.8	37.7	35.0	33.1

TABLE D-2.—CHANGE IN NET REPLACEMENT RATES OVER TIME FOR MARRIED WORKERS RETIRING IN 1985 AT AGE 55 WITH 30 YEARS SERVICE

	$20,000	$30,000	$45,000	$55,000	$65,000
CSRS:					
At retirement	61.3	62.7	65.2	67.0	68.8
At age 58	57.8	56.8	57.8	58.6	59.4
At age 62	57.8	56.8	57.8	58.6	59.4
At age 80	61.3	62.7	60.2	59.8	60.6
Private 1:					
At retirement	21.8	24.6	26.5	27.2	27.9
At age 58	19.8	22.5	24.2	24.9	25.6
At age 62	54.9	50.9	44.2	41.3	39.4
At age 80	49.2	44.9	37.6	34.7	32.7
Private 1A:					
At retirement	62.3	63.7	66.0	66.6	67.0
At age 58	55.6	56.6	58.7	59.4	59.9
At age 62	85.3	80.8	73.6	69.6	66.9
At age 80	65.0	60.6	52.3	48.7	46.3
Private 2:					
At retirement	20.3	23.4	24.6	25.0	25.4
At age 58	18.4	21.2	22.5	22.9	23.3
At age 62	53.7	49.8	42.6	39.4	37.3
At age 80	48.3	43.6	36.4	33.2	31.2
Private 2A:					
At retirement	61.1	62.5	64.3	64.6	64.8
At age 58	54.5	55.6	57.1	57.6	57.9
At age 62	84.3	79.8	72.3	68.1	65.0
At age 80	64.2	59.8	51.4	47.5	44.9
State 1:					
At retirement	67.6	69.8	72.4	73.8	75.3
At age 58	60.5	60.1	60.9	61.3	61.7
At age 62	98.1	91.8	82.7	77.9	74.9
At age 80	91.4	83.1	73.2	69.6	67.5

TABLE D-2.—CHANGE IN NET REPLACEMENT RATES OVER TIME FOR MARRIED WORKERS RETIRING IN 1985 AT AGE 55 WITH 30 YEARS SERVICE—Continued

	$20,000	$30,000	$45,000	$55,000	$65,000
State 2:					
At retirement	24.1	24.8	24.5	24.5	24.5
At age 58	22.9	23.6	23.4	23.4	23.4
At age 62	59.9	54.0	45.1	41.4	39.0
At age 80	56.4	50.4	42.2	38.6	35.9

TABLE D-3.—TOTAL GROSS REPLACEMENT RATES OF SINGLE PERSONS RETIRING IN 1985 AT AGE 65 WITH 10 YEARS OF SERVICE

Plan	$20,000	$30,000	$45,000	$55,000	$65,000
CSRS	15.5	15.5	15.5	15.5	15.5
State 1	29.4	26.8	24.4	23.4	22.7
State 2	24.6	22.1	19.6	18.6	18.0
Private 1	20.1	18.7	17.3	16.8	16.4
Private 1A	35.7	34.3	32.9	32.4	32.0
Private 2	20.3	18.9	17.2	16.5	16.1
Private 2A	35.9	34.5	32.8	32.1	31.6

TABLE D-4.—TOTAL GROSS REPLACEMENT RATES OF MARRIED PERSONS RETIRING IN 1985 AT AGE 65 WITH 10 YEARS OF SERVICE

Plan	$20,000	$30,000	$45,000	$55,000	$65,000
CSRS	15.1	14.8	14.5	14.4	14.4
State 1	31.9	28.1	24.4	22.9	21.9
State 2	66.4	53.1	40.1	35.1	31.6
Private 1	24.2	21.4	18.7	17.6	16.8
Private 1A	39.8	37.0	34.2	33.2	32.4
Private 2	24.3	21.6	18.6	17.4	16.5
Private 2A	39.9	37.2	34.1	32.9	32.1

TABLE D-5.—TOTAL GROSS REPLACEMENT RATES OF SINGLE PERSONS RETIRING IN 1985 AT AGE 62 WITH 20 YEARS OF SERVICE

Plan	$20,000	$30,000	$45,000	$55,000	$65,000
CSRS	34.5	34.5	34.5	34.5	34.5
State 1	46.4	42.9	39.2	37.7	36.7
State 2	39.4	36.0	32.2	30.8	29.8
Private 1	35.2	33.7	32.1	31.4	31.0
Private 1A	65.3	63.9	62.2	61.6	61.1
Private 2	33.5	32.1	29.8	28.9	28.2
Private 2A	63.6	62.3	60.0	59.0	58.4

TABLE D-6.—TOTAL GROSS REPLACEMENT RATES OF MARRIED PERSONS RETIRING IN 1985 AT AGE 62 WITH 20 YEARS OF SERVICE

Plan	$20,000	$30,000	$45,000	$55,000	$65,000
CSRS	32.4	31.9	31.6	31.5	31.4
State 1	50.0	44.8	39.2	37.1	35.6
State 2	61.0	51.9	42.1	38.3	35.7
Private 1	40.8	37.5	33.7	32.3	31.3
Private 1A	71.0	67.6	63.9	62.4	61.4
Private 2	39.3	36.0	31.7	30.0	28.8
Private 2A	69.4	66.1	61.8	60.1	58.9

TABLE D-7.—TOTAL GROSS REPLACEMENT RATES OF SINGLE PERSONS RETIRING IN 1985 AT AGE 55 WITH 30 YEARS OF SERVICE

Plan	$20,000	$30,000	$45,000	$55,000	$65,000
CSRS	53.4	53.4	53.4	53.4	53.4
State 1	56.9	56.9	56.9	56.9	56.9
State 2	21.3	21.3	21.3	21.3	21.3
Private 1	19.1	21.0	23.1	23.9	24.5
Private 1A	56.7	58.6	60.6	61.5	62.1
Private 2	17.8	19.9	21.2	21.7	22.1
Private 2A	55.4	57.4	56.8	59.3	59.6

TABLE D-8.—TOTAL GROSS REPLACEMENT RATES OF MARRIED PERSONS RETIRING IN 1985 AT AGE 55 WITH 30 YEARS OF SERVICE

Plan	$20,000	$30,000	$45,000	$55,000	$65,000
CSRS	49.4	48.9	48.6	48.5	48.4
State 1	51.4	51.4	51.4	51.4	51.4
State 2	19.3	19.3	19.3	19.3	19.3
Private 1	17.8	19.6	21.5	22.3	22.9
Private 1A	55.4	57.2	59.1	59.9	60.4
Private 2	16.6	18.5	19.8	20.3	20.6
Private 2A	54.2	56.1	57.4	57.8	58.2

TABLE D-9.—TOTAL GROSS REPLACEMENT RATES OF SINGLE PERSONS RETIRING IN 1985 AT AGE 65 WITH 30 YEARS OF SERVICE

Plan	$20,000	$30,000	$45,000	$55,000	$65,000
CSRS	53.6	53.6	53.6	53.6	53.6
State 1	88.1	80.5	73.1	70.2	68.2
State 2	73.8	66.2	58.8	55.9	53.9
Private 1	60.4	56.2	52.0	50.4	49.2
Private 1A	107.9	103.6	99.4	97.8	96.7
Private 2	60.9	56.8	51.7	49.6	48.8
Private 2A	108.4	104.2	99.1	97.0	95.6

TABLE D-10.—TOTAL GROSS REPLACEMENT RATES OF MARRIED PERSONS RETIRING IN 1985 AT AGE 65 WITH 30 YEARS OF SERVICE

Plan	$20,000	$30,000	$45,000	$55,000	$65,000
CSRS	49.6	49.1	48.8	48.7	48.7
State 1	95.6	84.2	73.1	68.7	65.7
State 2	91.0	77.7	64.7	59.7	56.2
Private 1	72.6	64.2	56.0	52.7	50.5
Private 1A	120.1	111.6	103.4	100.2	98.0
Private 2	73.0	64.7	55.7	52.1	49.6
Private 2A	120.5	112.2	103.1	99.5	97.0

TABLE D-11.—TOTAL GROSS REPLACEMENT RATES OF SINGLE PERSONS RETIRING IN 1985 AT AGE 65 WITH 40 YEARS OF SERVICE

Plan	$20,000	$30,000	$45,000	$55,000	$65,000
CSRS	72.7	72.7	72.7	72.7	72.7
State 1	112.3	103.4	94.8	91.4	89.1
State 2	93.2	84.4	75.7	72.4	70.0
Private 1	75.4	71.0	66.7	65.0	63.8
Private 1A	134.8	130.4	126.0	124.3	123.2
Private 2	76.1	71.8	66.2	64.0	62.4
Private 2A	135.4	131.2	125.6	123.3	121.8

TABLE D-12.—TOTAL GROSS REPLACEMENT RATES OF MARRIED PERSONS RETIRING IN 1985 AT AGE 65 WITH 40 YEARS OF SERVICE

Plan	$20,000	$30,000	$45,000	$55,000	$65,000
CSRS	66.8	66.3	66.0	65.9	65.8
State 1	119.7	106.4	93.4	88.4	84.9
State 2	103.3	90.0	77.0	72.0	68.5
Private 1	89.1	79.8	70.6	67.1	64.6
Private 1A	148.5	139.1	130.0	126.4	124.0
Private 2	89.7	80.5	70.2	66.2	63.4
Private 2A	149.0	139.8	129.6	125.5	122.7

SECTION II

The tables in Section II show replacement rates for the backdrop and modified backdrop plans discussed in Chapter 4. All plans assume the same employer cost as the current system. The replacement rates are for an employee retiring in the year 2030 and are given as *gross* rather than *net* figures.

Tables D-13 through D-16 give gross replacement rates for the basic unmodified backdrop plans.

Tables D-17 through D-21 show the replacement rates that resulted from specific isolated changes in the benefit features of the 50 percent offset and the add-on backdrop plans, with any savings to the plan from such changes offset by a corresponding increase in the accrual rate. The changes made were: A three percent per year reduction in retirement benefits received before age 62, and a capital accumulation plan; a 50 percent reduction in the postretirement COLA that matches each dollar contributed by each employee with $0.50 in employer money. Replacement rates for employees fully participating and not participating at all are shown.

Tables D-22 through D-26 show the replacement rates that resulted from specific combinations of changes in the benefits features of the 50 percent and add-on backdrop plans.

TABLE D-13A.—GROSS REPLACEMENT RATES, BACKDROP PLAN: 100 PERCENT OFFSET, ACCRUAL RATE=1.78

	(Final salaries have been adjusted to 1984 dollars)			
	$15,000	$30,000	$45,000	$65,000
Retirement at:				
Age 55/30 years:				
Total rate	41.2	43.2	44.7	46.2
Pension	21.2	28.0	32.9	37.8
Pre-62 supplement	20.0	15.2	11.8	8.4
Age 62/20 years:				
Total rate	29.3	30.1	30.9	31.6
Pension	16.8	20.2	23.1	25.8
OASDI	12.4	9.9	7.8	5.8
Age 62/30 years:				
Total rate	43.9	45.4	46.4	47.4
Pension	24.4	29.9	34.3	38.5
OASDI	19.4	15.5	12.1	8.9
Age 65/30 years:				
Total rate	49.5	49.6	49.6	49.7
Pension	24.2	29.4	33.9	38.0
OASDI	25.3	20.2	15.7	11.6
Age 67/10 years:				
Total rate	17.6	17.4	17.3	17.1
Pension	9.2	10.8	11.7	12.9
OASDI	8.5	6.7	5.6	4.2
Age 67/30 years:				
Total rate	53.4	52.7	52.1	51.5
Pension	24.4	29.3	33.8	37.9
OASDI	29.0	23.4	18.2	13.6
Age 67/40 years:				
Total rate	67.2	67.2	67.2	67.2
Pension	30.7	38.8	45.2	51.3
OASDI	36.5	28.4	22.0	16.0

Note: These rates are for persons retiring in the year 2030. Comparable current CSRS rates are 10 years service, 15%; 20 years, 34%; 30 years, 53%; and 40 years, 72%. Total rates may not add due to rounding.

TABLE D-13B.—GROSS REPLACEMENT RATES, BACKDROP PLAN: 100 PERCENT OFFSET (MARRIED), ACCRUAL RATE=1.78

	(Final salaries have been adjusted to 1984 dollars)			
	$15,000	$30,000	$45,000	$65,000
Retirement at:				
Age 55/30 years:				
Total rate	39.2	40.5	41.5	42.4
Pension	19.3	25.3	29.7	34.0
Pre-62 supplement	20.0	15.2	11.8	8.4

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TABLE D-13B.—GROSS REPLACEMENT RATES, BACKDROP PLAN: 100 PERCENT OFFSET (MARRIED), ACCRUAL RATE=1.78—Continued

	(Final salaries have been adjusted to 1984 dollars)			
	$15,000	$30,000	$45,000	$65,000
Age 62/20 years:				
Total rate	34.0	33.1	32.6	31.9
Pension	15.3	18.2	20.9	23.3
OASDI	18.7	14.9	11.7	8.6
Age 62/30 years:				
Total rate	51.3	50.2	49.0	48.0
Pension	22.1	27.0	30.9	34.7
OASDI	29.2	23.2	18.1	13.4
Age 65/30 years:				
Total rate	59.9	56.8	54.1	51.7
Pension	22.0	26.6	30.6	34.3
OASDI	37.9	30.2	23.5	17.4
Age 67/10 years:				
Total rate	21.1	19.8	18.9	18.0
Pension	8.4	9.8	10.6	11.7
OASDI	12.7	10.0	8.3	6.3
Age 67/30 years:				
Total rate	65.6	61.6	57.9	54.5
Pension	22.1	26.4	30.5	34.1
OASDI	43.5	35.1	27.4	20.4
Age 67/40 years:				
Total rate	82.6	77.6	73.8	70.1
Pension	27.8	35.0	40.7	46.7
OASDI	54.8	42.6	33.1	23.9

Note: These rates are for a married person retiring in the year 2030. Comparable current CSRS rates are 10 years service, 14%; 20 years, 31%; 30 years, 48%; and 40 years, 64%. Total rates may not add due to rounding.

TABLE D-14.—GROSS REPLACEMENT RATES, BACKDROP PLAN: 83.3 PERCENT OFFSET, ACCRUAL RATE=1.67

	(Final salaries have been adjusted to 1984 dollars)			
	$15,000	$30,000	$45,000	$65,000
Retirement at:				
Age 62/30 years:				
Total rate	45.0	45.6	45.9	46.2
Pension	25.5	30.1	33.8	37.3
OASDI	19.4	15.5	12.1	8.9

Note: These rates are for persons retiring in the year 2030. Comparable current CSRS rates are 10 years service, 15%; 20 years, 34%; 30 years, 53%; and 40 years, 72%. Total rates may not add due to rounding.

TABLE D-15.—GROSS REPLACEMENT RATES, BACKDROP PLAN: 50 PERCENT OFFSET, ACCRUAL RATE=1.45

	(Final salaries have been adjusted to 1984 dollars)			
	$15,000	$30,000	$45,000	$65,000
Retirement at:				
Age 55/30 years:				
Total rate	46.3	44.9	43.9	42.9
Pension	26.3	29.7	32.1	34.6
Pre-62 supplement	20.0	15.2	11.8	8.4
Age 62/10 years:				
Total rate	15.5	15.2	14.9	14.5
Pension	9.8	10.4	11.2	11.8
OASDI	5.9	4.8	3.7	2.7
Age 62/20 years:				
Total rate	31.3	30.4	29.8	29.1
Pension	18.8	20.5	22.0	23.3
OASDI	12.4	9.9	7.8	5.8
Age 62/30 years:				
Total rate	47.3	46.1	44.9	43.8
Pension	27.9	30.6	32.8	34.9
OASDI	19.4	15.5	12.1	8.9
Age 62/40 years:				
Total rate	61.0	59.7	58.6	57.6
Pension	36.5	40.8	43.9	47.1
OASDI	24.5	18.9	14.7	10.5
Age 65/30 years:				
Total rate	53.1	50.5	48.3	46.3
Pension	27.8	30.4	32.6	34.7
OASDI	25.3	20.2	15.7	11.6
Age 67/10 years:				
Total rate	18.3	17.3	16.6	15.9
Pension	9.8	10.6	11.1	11.7
OASDI	8.5	6.7	5.6	4.2
Age 67/30 years:				
Total rate	56.9	53.7	50.8	48.2
Pension	27.9	30.3	32.6	34.6
OASDI	29.0	23.4	18.2	13.6
Age 67/40 years:				
Total rate	73.0	69.0	65.8	62.7
Pension	36.5	40.6	43.7	46.8
OASDI	36.5	28.4	22.0	16.0

Note: These rates are for persons retiring in the year 2030. Comparable current CSRS rates are 10 years service, 15%; 20 years, 34%; 30 years, 53%; and 40 years, 72%. Total rates may not add due to rounding.

TABLE D-16.—GROSS REPLACEMENT RATES, BACKDROP PLAN: ADD-ON VERSION, ACCRUAL RATE = 1.78

	(Final salaries have been adjusted to 1984 dollars)			
	$15,000	$30,000	$45,000	$65,000
Retirement at:				
Age 55/30 years:				
Total rate	51.6	46.8	43.4	40.0
Pension	31.6	31.6	31.6	31.6
Pre-62 supplement	20.0	15.2	11.8	8.4
Age 62/20 years:				
Total rate	33.5	31.0	28.9	26.8
Pension	21.1	21.1	21.1	21.1
OASDI	12.4	9.9	7.8	5.8
Age 62/30 years:				
Total rate	51.1	47.1	43.7	40.5
Pension	31.6	31.6	31.6	31.6
OASDI	19.4	15.5	12.1	8.9
Age 65/30 years:				
Total rate	56.9	51.8	47.3	43.3
Pension	31.6	31.6	31.6	31.6
OASDI	25.3	20.2	15.7	11.6
Age 67/30 years:				
Total rate	60.6	55.0	49.8	45.2
Pension	31.6	31.6	31.6	31.6
OASDI	29.0	23.4	18.2	13.6
Age 67/40 years:				
Total rate	79.2	71.1	64.7	58.7
Pension	42.7	42.7	42.7	42.7
OASDI	36.5	28.4	22.0	16.0
Age 67/10 years:				
Total rate	19.0	17.2	16.1	14.7
Pension	10.5	10.5	10.5	10.5
OASDI	8.5	6.7	5.6	4.2

Note: These rates are for persons retiring in the year 2030. Comparable current CSRS rates are 10 years service, 15%; 20 years, 34%; 30 years, 53%; and 40 years, 72%. Total rates may not add due to rounding.

TABLE D-17.—GROSS REPLACEMENT RATES, BACKDROP PLAN: 50 PERCENT WITH A 50-PERCENT REDUCTION IN COLA, ACCRUAL RATE = 1.80

	(Final salaries have been adjusted to 1984 dollars)			
	$15,000	$30,000	$45,000	$65,000
Retirement at:				
Age 55/30 years:				
Total rate	56.0	54.7	53.7	52.7
Pension	31.1	39.4	41.9	44.4
Pre-62 supplemental	20.0	15.2	11.8	8.4
Total at age 62	51.3	50.1	48.9	47.8
Pension	31.5	34.4	36.6	38.7
OASDI	19.8	15.7	12.3	9.0
Total at age 80	42.0	40.0	38.1	36.4
Pension	22.2	24.3	25.8	27.3
OASDI	19.8	15.7	12.3	9.0

TABLE D-18.—GROSS REPLACEMENT RATES, BACKDROP PLAN: ADD-ON WITH A 50 PERCENT REDUCTION IN COLA, ACCRUAL RATE=1.475

	(Final salaries have been adjusted to 1984 dollars)			
	$15,000	$30,000	$45,000	$65,000
Retirement at:				
Age 55/30 years:				
Total rate	61.2	56.5	53.1	49.6
Pension	41.2	41.2	41.2	41.2
Pre-62 supplemental	20.0	15.2	11.8	8.4
Total at age 62	55.8	51.7	48.4	45.1
Pension	36.0	36.0	36.0	36.0
OASDI	19.8	15.7	12.3	9.0
Total at age 80	45.2	41.1	37.7	34.4
Pension	25.4	25.4	25.4	25.4
OASDI	19.8	15.7	12.3	9.0

Note: These rates are for persons retiring in the year 2030. Comparable current CSRS rates are 10 years service, 15%; 20 years, 34%; 30 years, 53%; and 40 years, 72%. Total rates may not add due to rounding.

TABLE D-19.—GROSS REPLACEMENT RATES, BACKDROP PLAN: 50 PERCENT OFFSET WITH AN EARLY RETIREMENT REDUCTION, ACCRUAL RATE=1.71

	(Final salaries have been adjusted to 1984 dollars)			
	$15,000	$30,000	$45,000	$65,000
Retirement at:				
Age 55/30 years:				
Total rate	26.5	29.2	31.1	33.0
Pension	26.5	29.2	31.1	33.0
Pre-62 supplemental	0.0	0.0	0.0	0.0
Total at age 62	46.3	44.8	43.5	42.1
Pension	26.5	29.2	31.1	33.0
OASDI	19.8	15.7	12.4	9.0
Retirement at:				
Age 62/20 years:				
Total rate	36.1	35.3	34.6	34.0
Pension	23.7	25.4	26.8	28.2
OASDI	12.4	9.9	7.8	5.8
Age 62/30 years:				
Total rate	54.6	53.4	52.2	51.1
Pension	35.1	37.9	40.1	42.2
OASDI	19.4	15.5	12.1	8.9

TABLE D-19.—GROSS REPLACEMENT RATES, BACKDROP PLAN: 50 PERCENT OFFSET WITH AN EARLY RETIREMENT REDUCTION, ACCRUAL RATE = 1.71—Continued

	(Final salaries have been adjusted to 1984 dollars)			
	$15,000	$30,000	$45,000	$65,000
Age 65/30 years:				
Total rate	60.4	57.8	55.6	53.6
Pension	35.0	37.6	39.9	42.0
OASDI	25.3	20.2	15.7	11.6
Age 67/30 years:				
Total rate	64.1	61.0	58.1	55.5
Pension	35.1	37.6	39.8	41.9
OASDI	29.0	23.4	18.2	13.6
Age 67/40 years:				
Total rate	82.8	78.8	75.6	72.6
Pension	46.3	50.4	53.6	56.6
OASDI	36.5	28.4	22.0	16.0

Note: These rates are for persons retiring in the year 2030. Comparable current CSRS rates are 10 years service, 15%; 20 years, 34%; 30 years, 53%; and 40 years, 72%. Total rates may not add due to rounding.

TABLE D-20.—GROSS REPLACEMENT RATES, BACKDROP PLAN: 50 PERCENT OFFSET WITH A LOW-INDEXED CAPITAL ACCUMULATION (C.A.) PLAN, ACCRUAL RATE = 1.35

	(Final salaries have been adjusted to 1984 dollars)			
	$15,000	$30,000	$45,000	$65,000
Retirement at age 55/30 years:				
Total rate [1]	35.9	39.2	41.7	44.1
(Without C.A. plan)	(23.5)	(26.9)	(29.3)	(31.8)
Pension	23.5	26.9	29.3	31.8
C.A. plan	12.4	12.4	12.4	12.4
Pre-62 supplement	0.0	0.0	0.0	0.0
Total at age 62 [1]	55.6	55.0	54.0	53.2
(Without C.A. plan)	(43.3)	(42.6)	(41.7)	(40.8)
Pension	23.5	26.9	29.3	31.8
OASDI	19.8	15.7	12.3	9.0
C.A. plan	12.4	12.4	12.4	12.4
Retirement at age 62/20 years:				
Total rate [1]	40.0	39.1	38.5	37.8
(Without C.A. plan)	(29.4)	(28.6)	(27.9)	(27.2)
Pension	17.0	18.7	20.1	21.5
OASDI	—	9.9	7.8	5.8
C.A. plan	10.6	10.6	10.6	10.6
Retirement at age 62/30 years:				
Total rate [1]	59.4	58.2	57.0	55.9
(Without C.A. plan)	(44.5)	(43.3)	(42.1)	(41.0)
Pension	25.1	27.8	30.0	32.1
OASDI	19.4	15.5	12.1	8.9
C.A. plan	14.9	14.9	14.9	14.9
Retirement at age 67/40 years:				
Total rate [1]	93.7	89.6	86.5	83.4
(Without C.A. plan)	(69.2)	(65.2)	(62.0)	(59.0)
Pension	32.7	36.8	40.0	43.0
OASDI	36.5	28.4	22.0	16.1
C.A. plan	24.5	24.5	24.5	24.5

[1] These totals assume that the individuals participate fully in the capital accumulation plan.

Note: These rates are for persons retiring in the year 2030. Comparable current CSRS rates are 10 years service, 15%; 20 years, 34%, 30 years, 53%; and 40 years, 72%. Total rates may not add due to rounding.

TABLE D-21.—GROSS REPLACEMENT RATES, BACKDROP PLAN: ADD-ON WITH A LOW-INDEXED CAPITAL ACCUMULATION (C.A.) PLAN, ACCRUAL RATE=1.03

	(Final salaries have been adjusted to 1984 dollars)			
	$15,000	$30,000	$45,000	$65,000
Retirement at:				
Age 55/30 years:				
Total rate [1]	61.2	56.4	53.0	49.6
(Without C.A. plan)	(48.8)	(44.0)	(40.6)	(37.2)
Pension	28.8	28.8	28.8	28.8
Pre-62 supplemental	20.0	15.2	11.8	8.4
C.A. plan	12.4	12.4	12.4	12.4
Total at age 62 [1]	61.0	56.9	53.5	50.2
(Without C.A. plan)	(48.6)	(44.5)	(41.2)	(37.9)
Pension	28.8	28.8	28.8	28.8
OASDI	19.8	15.7	12.3	9.0
C.A. plan	12.4	12.4	12.4	12.4
Retirement at age 62/20 years.				
Total rate [1]	42.2	39.7	37.6	35.5
(Without C.A. plan)	(31.6)	(29.1)	(27.0)	(25.0)
Pension	19.2	19.2	19.2	19.2
OASDI	12.4	9.9	7.8	5.8
C.A. plan	10.6	10.6	10.6	10.6
Retirement at age 62/30 years:				
Total rate [1]	63.2	59.2	55.8	52.6
(Without C.A. plan)	(48.3)	(44.3)	(40.9)	(37.7)
Pension	28.8	28.8	28.8	28.8
OASDI	19.4	15.5	12.1	8.9
C.A. plan	14.9	14.9	14.9	14.9
Retirement at age 67/40 years:				
Total rate [1]	99.9	91.8	85.4	79.3
(Without C.A. plan)	(75.4)	(67.3)	(61.0)	(54.9)
Pension	38.9	38.9	38.9	38.9
OASDI	36.5	28.4	22.0	16.0
C.A. plan	24.5	24.5	24.5	24.5

[1] These totals assume that the individuals participate fully in the capital accumulation plan.

Note: These rates are for persons retiring in the year 2030. Comparable current CSRS rates are 10 years service, 15%; 20 years, 34%; 30 years, 5?%; and 40 years, 72%. Total rates may not add due to rounding.

TABLE D-22.—GROSS REPLACEMENT RATES, BACKDROP PLAN: 50 PERCENT OFFSET WITH A LOW-INDEXED CAPITAL ACCUMULATION (C.A.) PLAN, 50 PERCENT COLA, PRE-62 RETIREMENT SUPPLEMENT, ACCRUAL RATE=1.67

	(Final salaries have been adjusted to 1984 dollars)			
	$15,000	$30,000	$45,000	$65,000
Retirement at:				
Age 55/30 years:				
Total rate [1]	64.8	63.4	62.4	61.5
(Without C.A. plan)	(52.4)	(56.1)	(50.1)	(45.1)
Pension	32.4	35.8	38.8	40.7
Pre-62 supplement	20.0	15.2	11.8	8.4
C.A. plan	12.4	12.4	12.4	12.4
Total at age 62 [1]	60.5	59.3	58.1	57.0
(Without C.A. plan)	(48.1)	(47.0)	(45.8)	(44.6)
Pension	28.3	31.3	33.4	35.5
OASDI	19.8	15.7	12.3	9.0
C.A. plan	12.4	12.4	12.4	12.4

TABLE D–22.—GROSS REPLACEMENT RATES, BACKDROP PLAN: 50 PERCENT OFFSET WITH A LOW-INDEXED CAPITAL ACCUMULATION (C.A.) PLAN, 50 PERCENT COLA, PRE-62 RETIREMENT SUPPLEMENT, ACCRUAL RATE=1.67—Continued

	(Final salaries have been adjusted to 1984 dollars)			
	$15,000	$30,000	$45,000	$65,000
Total at age 80 [1]	52.1	50.1	48.3	46.5
(Without C.A. plan)	(39.8)	(37.7)	(35.9)	(34.1)
Pension	20.0	22.0	23.6	25.0
OASDI	19.8	15.7	12.3	9.0
C.A. plan	12.4	12.4	12.4	12.4
Retirement at age 62/20 years:				
Total rate [1]	46.0	45.1	44.4	43.8
(Without C.A. plan)	(35.4)	(34.6)	(33.9)	(33.2)
Pension	23.0	24.6	26.1	27.4
OASDI	12.4	9.9	7.8	5.8
C.A. plan	10.6	10.6	10.6	10.6
Total at age 80 [1]	39.2	37.8	36.8	35.7
(Without C.A. plan)	(28.6)	(27.3)	(26.2)	(25.1)
Pension	16.2	17.4	18.4	19.4
OASDI	12.4	9.9	7.8	5.8
C.A. plan	10.6	10.6	10.6	10.6
Retirement at age 62/30 years:				
Total rate [1]	68.4	67.2	66.0	64.9
(Without C.A. plan)	(53.5)	(52.2)	(51.0)	(50.0)
Pension	34.0	36.8	39.0	41.0
OASDI	19.4	15.5	12.1	8.9
C.A. plan	14.9	14.9	14.9	14.9
Total at age 80 [1]	58.4	56.3	54.4	52.8
(Without C.A. plan)	(43.4)	(41.5)	(39.5)	(37.9)
Pension	24.0	25.9	27.5	28.9
OASDI	19.4	15.5	12.1	8.9
C.A. plan	14.9	14.9	14.9	14.9
Retirement at age 67/30 years:				
Total rate [1]	80.5	77.3	74.4	71.8
(Without C.A. plan)	(63.0)	(59.9)	(57.0)	(54.4)
Pension	34.0	36.5	38.7	40.8
OASDI	29.0	23.4	18.2	13.6
C.A. plan	17.5	17.5	17.5	17.5
Total at age 80 [1]	72.9	69.2	65.8	62.7
(Without C.A. plan)	(55.4)	(51.7)	(48.3)	(45.3)
Pension	26.4	28.3	30.1	31.7
OASDI	29.0	23.4	18.2	13.6
C.A. plan	17.5	17.5	17.5	17.5
Retirement at age 57/40 years:				
Total rate [1]	105.8	101.7	98.6	95.5
(Without C.A. plan)	(81.3)	(77.3)	(74.1)	(71.1)
Pension	44.8	48.9	52.0	55.1
OASDI	36.5	28.4	22.0	16.0
C.A. plan	24.5	24.5	24.5	24.5
Total at age 80 [1]	95.8	90.8	87.0	83.2
(Without C.A. plan)	(71.3)	(66.4)	(62.5)	(58.8)
Pension	34.8	38.0	40.4	42.8
OASDI	36.5	28.4	22.0	16.0
C.A. plan	24.5	24.5	24.5	24.5

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[1] These totals assume that the individuals participate fully in the capital accumulation plan.

Note: These rates are for persons retiring in the year 2030. Comparable current CSRS rates are 10 years service, 15%; 20 years, 34%; 30 years, 53%; and 40 years, 72%. Total rates may not add due to rounding.

TABLE D-23.—GROSS REPLACEMENT RATES, BACKDROP PLAN: 50 PERCENT OFFSET WITH A 3 PERCENT EARLY RETIREMENT REDUCTION, A LOW-INDEXED CAPITAL ACCUMULATION PLAN (C.A.), ACCRUAL RATE=1.60

	(Final salaries have been adjusted to 1984 dollars)			
	$15,000	$30,000	$45,000	$65,000
Total at retirement:				
Age 55/30 years:				
Total rate[1]	36.4	39.1	41.1	43.0
(Without C.A. plan)	(24.1)	(26.8)	(28.7)	(30.6)
Pension	24.1	26.8	28.7	30.6
C.A. plan	12.4	12.4	12.4	12.4
Pre-62	0.0	0.0	0.0	0.0
Age 62/20 years:				
Total rate[1]	44.6	43.8	43.2	42.5
(Without C.A. plan)	(34.1)	(33.2)	(32.6)	(31.9)
Pension	21.6	23.3	24.8	26.1
OASDI	12.4	9.9	7.8	5.8
C.A. plan	10.6	10.6	10.6	10.6
Age 62/30 years:				
Total rate[1]	66.4	65.2	64.0	62.9
(Without C.A. plan)	(51.5)	(50.3)	(49.1)	(48.0)
Pension	32.1	34.8	37.0	39.1
OASDI	19.4	15.5	12.1	8.9
C.A. plan	14.9	14.9	14.9	14.9
Age 65/30 years:				
Total rate[1]	73.6	71.1	68.9	66.8
(Without C.A. plan)	(57.3)	(54.7)	(52.5)	(50.4)
Pension	32.0	34.6	36.8	38.9
OASDI	25.3	20.2	15.7	11.6
C.A. plan	16.3	16.3	16.3	16.3
Age 67/30 years:				
Total rate[1]	78.5	75.4	72.5	69.9
(Without C.A. plan)	(61.1)	(57.9)	(55.0)	(52.4)
Pension	32.0	34.5	36.8	38.8
OASDI	29.0	23.4	18.2	13.6
C.A. plan	17.5	17.5	17.5	17.5
Age 67/40 years:				
Total rate[1]	103.1	99.1	95.9	92.9
(Without C.A. plan)	(78.7)	(74.6)	(71.5)	(68.4)
Pension	42.2	46.2	49.4	52.4
OASDI	36.5	28.4	22.0	16.0
C.A. plan	24.5	24.5	24.5	24.5

[1] These rates assume that the individuals participate fully in the capital accumulation plan.

Note: These rates are for persons retiring in the 2030. Comparable current CSRS rates are 10 years service, 15%; 20 years, 34%; 30 years, 53%; 40 years, 72%. Total rates may not add due to rounding.

TABLE D-24.—GROSS REPLACEMENT RATES, BACKDROP PLAN: 50 PERCENT OFFSET WITH A TWO-STEP INDEXED CAPITAL ACCUMULATION PLAN (C.A.), ACCRUAL RATE=1.35

	(Final salaries have been adjusted to 1984 dollars)			
	$15,000	$30,000	$45,000	$65,000
Retirement at:				
Age 55/30 years:				
Total rate[1]	49.3	49.5	50.0	50.4
(Without C.A. plan)	(23.5)	(26.9)	(29.3)	(31.8)
Pension	23.5	26.9	29.3	31.8
C.A. plan	25.8	23.6	20.7	18.6
Pre-62 supplement	0.0	0.0	0.0	0.0

TABLE D-24.—GROSS REPLACEMENT RATES, BACKDROP PLAN: 50 PERCENT OFFSET WITH A TWO-STEP INDEXED CAPITAL ACCUMULATION PLAN (C.A.), ACCRUAL RATE=1.35—Continued

	(Final salaries have been adjusted to 1984 dollars)			
	$15,000	$30,000	$45,000	$65,000
Total at age 62 [1]	49.3	49.5	50.0	50.4
(Without C.A. plan)	(43.3)	(42.6)	(41.6)	(40.9)
Pension	23.5	25.9	29.3	31.8
OASDI	19.8	15.7	12.3	9.1
C.A. plan	6.0	7.0	8.4	9.5

[1] These totals assume that the individuals participate fully in the capital accumulation plan.

Note: These rates are for persons retiring in the year 2030. Comparable current CSRS rates are 10 years service, 15%; 20 years, 34%; 30 years, 53%; and 40 years, 72%. Total rates may not add due to rounding.

TABLE D-25.—GROSS REPLACEMENT RATES, BACKDROP PLAN: 50-PERCENT OFFSET WITH A SUPPLEMENT, UNINDEXED CAPITAL ACCUMULATION PLAN (C.A.), ACCRUAL RATE=1.35

	(Final salaries have been adjusted to 1984 dollars)			
	$15,000	$30,000	$45,000	$65,000
Retirement at:				
Age 55/30 years: [1]				
Total rate	62.8	61.4	60.4	59.5
(Without C.A. plan)	(43.5)	(42.1)	(41.1)	(40.2)
Pension	23.5	26.9	29.3	31.8
Pre-62 supplement	20.0	15.2	11.8	8.4
C.A. plan	19.3	19.3	19.3	19.3
Total at age 62 [1]	58.0	57.3	56.3	55.5
(Without C.A. plan)	(43.3)	(42.6)	(41.6)	(40.8)
Pension	23.5	26.9	29.3	31.8
OASDI	19.8	15.7	12.3	9.0
C.A. plan	14.7	14.7	14.7	14.7
Total at age 80 [1]	50.5	49.8	48.8	48.0
(Without C.A. plan)	(43.3)	(42.6)	(41.6)	(40.8)
Pension	23.5	26.9	29.3	31.8
OASDI	19.8	15.7	12.3	9.0
C.A. plan	7.2	7.2	7.2	7.2

[1] These totals assume that the individuals participate fully in the capital accumulation plan.

Note: These rates are for persons retiring in the year 2030. Comparable current CSRS rates are 10 years, service, 15%; 20 years, 34%; 30 years, 53%; and 40 years 72%. Total rates may not add due to rounding.

TABLE D-26.—GROSS REPLACEMENT RATES, BACKDROP PLAN: 50 PERCENT OFFSET WITH A LOW-UNINDEXED CAPITAL ACCMULATION PLAN (C.A.), 3 PERCENT EARLY RETIREMENT REDUCTION, ACCRUAL RATE=1.60

	(Final salaries have been adjusted to 1984 dollars)			
	$15,000	$30,000	$45,000	$65,000
Retirement at age 55/30 years: [1]				
Total rate	43.4	46.1	48.0	50.0
(Without C.A. plan)	(24.1)	(26.8)	(28.7)	(30.6)
Pension	24.1	26.8	28.7	30.6
C.A. plan	19.3	19.3	19.3	19.3
Total at age 62 [1]	58.6	57.1	55.7	54.4
(Without C.A. plan)	(43.9)	(42.4)	(41.0)	(39.7)
Pension	24.1	26.8	28.7	30.6
OASDI	19.8	15.7	12.3	9.0
C.A. plan	14.7	14.7	14.7	14.7

TABLE D-26.—GROSS REPLACEMENT RATES, BACKDROP PLAN: 50 PERCENT OFFSET WITH A LOW-UNINDEXED CAPITAL ACCMULATION PLAN (C.A.), 3 PERCENT EARLY RETIREMENT REDUCTION, ACCRUAL RATE = 1.60—Continued

	(Final salaries have been adjusted to 1984 dollars)			
	$15,000	$30,000	$45,000	$65,000
Total at age 80 [1]	51.1	49.7	48.3	46.9
(Without C.A. plan)	(43.9)	(42.5)	(41.1)	(39.7)
Pension	24.1	26.8	28.7	30.6
OASDI	19.8	15.7	12.3	9.0
C.A. plan	7.2	7.2	7.2	7.2
Retirement at age 62/20 years: [1]				
Total rate	49.5	48.6	48.0	47.3
(Without C.A. plan)	(34.1)	(33.2)	(32.6)	(31.9)
Pension	21.6	23.3	24.8	26.1
OASDI	12.4	9.9	7.8	5.8
C.A. plan	15.4	15.4	15.4	15.4
Total at age 80 [1]	41.7	40.8	40.2	39.5
(Without C.A. plan)	(34.1)	(33.2)	(32.6)	(31.9)
Pension	21.6	23.3	24.8	26.1
OASDI	12.4	9.9	7.8	5.8
C.A. plan	7.6	7.6	7.6	7.6
Retirement at age 62/30 years: [1]				
Total rate	73.3	72.1	70.8	69.8
(Without C.A. plan)	(51.5)	(50.3)	(49.0)	(48.0)
Pension	32.1	34.8	37.0	39.1
OASDI	19.4	15.5	12.1	8.9
C.A. plan	21.8	21.8	21.8	21.8
Total at age 80 [1]	62.3	61.0	59.8	58.8
(Without C.A. plan)	(51.6)	(50.3)	(49.1)	(48.1)
Pension	32.1	34.8	37.0	39.1
OASDI	19.4	15.5	12.1	8.9
C.A. plan	10.7	10.7	10.7	10.7
Retirement at age 67/30 years: [1]				
Total rate	85.4	82.2	79.3	76.7
(Without C.A. plan)	(61.1)	(57.2)	(55.0)	(52.4)
Pension	32.0	34.5	36.8	36.8
OASDI	29.0	23.4	18.3	13.6
C.A. plan	24.3	24.3	24.3	24.3
Total at age 80 [1]	75.7	72.5	69.6	67.0
(Without C.A. plan)	(61.1)	(57.9)	(55.0)	(52.4)
Pension	32.0	34.5	36.8	38.8
OASDI	29.0	23.4	18.2	13.6
C.A. plan	14.6	14.6	14.6	14.6
Retirement at age 67/40 years: [1]				
Total rate	112.7	108.7	105.5	102.5
(Without C.A. plan)	(78.7)	(74.7)	(71.5)	(68.5)
Pension	42.2	46.2	49.4	52.5
OASDI	36.5	28.4	22.0	16.0
C.A. plan	34.0	34.0	34.0	34.0
Total at age 80 [1]	99.1	95.1	91.9	88.5
(Without C.A. plan)	(78.7)	(74.7)	(71.5)	(68.5)
Pension	42.2	46.2	49.4	52.4
OASDI	36.5	28.4	22.0	16.0
C.A. plan	20.4	20.4	20.4	20.4

[1] These totals assume that the individuals participate fully in the capital accmulation plan.

Note: These rates are for persons retiring in the year 2030. Comparable current CSRS rates are 10 years service, 15%; 20 years, 34%; 30 years, 53%; and 40 years, 72%. Total rates may not add due to rounding.

SECTION III

The tables in Section III show replacement rates for the five illustrative plans discussed in Chapter 5.

TABLE D-27.—GROSS REPLACEMENT RATES, ILLUSTRATIVE PLAN I—100 PERCENT OFFSET PLAN, [NO EMPLOYEE CONTRIBUTION], ACCRUAL RATE = 1.80

	(Final salaries have been adjusted to 1984 dollars)			
	$15,000	$30,000	$45,000	$65,000
Retirement at:				
Age 55/30 years:				
Total rate	41.8	43.8	45.3	46.7
Pension	21.8	28.6	33.5	38.4
Pre-62 supplement	20.0	15.2	11.8	8.4
Total at age 62	41.6	44.2	45.8	47.4
Pension	21.8	28.6	33.4	38.4
OASDI	19.8	15.7	12.3	9.0
Age 62/20 years:				
Total rate	29.6	30.5	31.3	32.0
Pension	17.2	20.5	23.5	26.2
OASDI	12.4	9.9	7.8	5.8
Age 62/30 years:				
Total rate	44.4	45.9	46.9	47.9
Pension	25.0	30.4	34.9	39.0
OASDI	19.4	15.5	12.1	8.9
Age 67/30 years:				
Total rate	54.0	53.3	52.6	52.0
Pension	24.9	29.8	34.4	38.4
OASDI	29.0	23.4	18.2	13.6
Age 67/40 years:				
Total rate	68.0	68.0	68.0	68.0
Pension	31.5	39.6	45.9	52.0
OASDI	36.5	28.4	22.0	16.0

Note: These rates are for persons retiring in the year 2030. Comparable current CSRS rates are 10 years service, 15%; 20 years, 34%; 30 years, 53%; and 40 years, 72%. Total rates may not add due to rounding.

TABLE D-28.—GROSS REPLACEMENT RATES,, ILLUSTRATIVE PLAN II—50 PERCENT OFFSET [NO EMPLOYEE CONTRIBUTION], ACCRUAL RATE = 1.40

	(Final salaries have been adjusted to 1984 dollars)			
	$15,000	$30,000	$45,000	$65,000
Retirement at:				
Age 55/30 years:				
Total at retirement	44.9	43.5	42.5	41.6
Pension	24.9	28.3	30.7	33.2
Pre-62 supplement	20.0	15.2	11.8	8.4
Total at age 62	44.7	43.9	43.1	42.2
Pension	24.9	28.3	30.7	33.2
OASDI	19.8	15.7	12.3	9.0

TABLE D-28.—GROSS REPLACEMENT RATES,, ILLUSTRATIVE PLAN II—50 PERCENT OFFSET [NO EMPLOYEE CONTRIBUTION], ACCRUAL RATE = 1.40—Continued

	(Final salaries have been adjusted to 1984 dollars)			
	$15,000	$30,000	$45,000	$65,000
Age 62/20 years:				
Total rate	30.4	29.5	28.9	28.2
Pension	17.9	19.6	21.1	22.4
OASDI	12.4	9.9	7.8	5.8
Age 62/30 years:				
Total rate	45.9	44.7	43.5	42.4
Pension	26.5	29.2	31.4	33.5
OASDI	19.4	15.5	12.1	8.9
Age 67/30 years:				
Total rate	55.5	52.3	49.4	46.8
Pension	26.4	28.9	31.2	33.2
OASDI	29.0	23.4	18.2	13.6
Age 67/40 years:				
Total rate	71.1	67.1	63.9	60.8
Pension	34.6	38.7	41.8	44.9
OASDI	36.5	28.4	22.0	16.0

Note: These rates are for persons retiring in the year 2030. Comparable current CSRS rates are 10 years service, 15%; 20 years, 34%; 30 years, 53%, and 40 years, 72%. Total rates may not add due to rounding.

TABLE D-29.—GROSS REPLACEMENT RATES, ILLUSTRATIVE PLAN III—50 PERCENT OFFSET PLAN WITH A LOW CAPITAL ACCUMULATION (C.A.) PLAN [NO EMPLOYEE CONTRIBUTION], ACCRUAL RATE = 1.30

	(Final salaries have been adjusted to 1984 dollars)			
	$15,000	$30,000	$45,000	$65,000
Retirement at:				
Age 55/30 years:				
Total rate[1]	54.4	53.1	52.1	51.1
(Without C.A. plan)	(42.1)	(40.7)	(39.7)	(38.8)
Pension	22.0	25.4	27.9	30.4
Pre-62 supplement	20.0	15.2	11.8	8.4
C.A. plan	12.4	12.4	12.4	12.4
Total at age 62[1]	54.3	53.5	52.7	51.8
(Without C.A. plan)	(41.9)	(41.2)	(40.3)	(39.4)
Pension	22.0	25.4	27.9	30.4
Pre-62 supplement	19.8	15.7	12.4	9.0
C.A. plan	12.4	12.4	12.4	12.4
Age 62/20 years:				
Total rate[1]	39.1	38.2	37.6	36.9
(Without C.A. plan)	(28.5)	(27.6)	(27.0)	(26.3)
Pension	16.0	17.7	19.2	20.6
Pre-62 supplement	12.5	9.9	7.8	5.8
C.A. plan	10.6	10.6	10.6	10.6
Age 62/30 years:				
Total rate[1]	58.1	56.8	56.6	54.5
(Without C.A. plan)	(43.2)	(41.9)	(41.7)	(39.6)
Pension	23.6	26.4	28.6	30.7
OASDI	19.5	15.5	12.1	8.9
C.A. plan	14.9	14.9	14.9	14.9

TABLE D-29.—GROSS REPLACEMENT RATES, ILLUSTRATIVE PLAN III—50 PERCENT OFFSET PLAN WITH A LOW CAPITAL ACCUMULATION (C.A.) PLAN [NO EMPLOYEE CONTRIBUTION], ACCRUAL RATE = 1.30—Continued

	(Final salaries have been adjusted to 1984 dollars)			
	$15,000	$30,000	$45,000	$65,000
Age 67/30 years:				
Total rate [1]	70.2	67.0	64.1	61.4
(Without C.A. plan)	(52.7)	(49.6)	(46.6)	(44.0)
Pension	23.6	26.1	28.4	30.4
OASDI	29.1	23.5	18.3	13.6
C.A. plan	17.5	17.5	17.5	17.5
Age 67/40 years:				
Total rate [1]	91.8	87.8	84.6	81.5
(Without C.A. plan)	(67.4)	(63.4)	(60.1)	(57.0)
Pension	30.8	34.8	38.1	41.1
OASDI	36.6	28.5	22.0	15.9
C.A. plan	24.5	24.5	24.5	24.5

[1] These totals assume that the individuals participate fully in the capital accumulation plan.

Note: These rates are for persons retiring in the year 2030. Comparable current CSRS rates are 10 years service, 15%; 20 years, 34%; 30 years, 53%; and 40 years, 72%. Total rates may not add due to rounding.

TABLE D-30.—GROSS REPLACEMENT RATES, ILLUSTRATIVE PLAN IV—50-PERCENT OFFSET PLAN WITH AN EARLY RETIREMENT REDUCTION, HIGH CAPITAL ACCUMULATION (C.A.) PLAN [NO EMPLOYEE CONTRIBUTION], ACCRUAL RATE = 1.63

	(Final salaries have been adjusted to 1984 dollars)			
	$15,000	$30,000	$45,000	$65,000
Retirement at age 55/30 years: [1]				
Total rate	41.2	43.9	45.8	47.8
(Without C.A. plan)	(24.7)	(27.4)	(29.4)	(31.3)
Pension	24.7	27.4	29.4	31.3
C.A. plan	16.5	16.5	16.5	16.5
Total at age 62 [1]	57.9	56.1	54.5	52.9
(Without C.A. plan)	(41.4)	(39.6)	(38.0)	(36.4)
Pension	21.6	23.9	25.6	27.3
OASDI	19.8	15.7	12.3	9.0
C.A. plan	16.5	16.5	16.5	16.5
Total at age 80 [1]	51.5	49.0	46.9	44.8
(Without C.A. plan)	(35.0)	(32.6)	(30.4)	(28.3)
Pension	15.2	16.9	18.1	19.2
OASDI	19.8	15.7	12.3	9.0
C.A. plan	16.5	16.5	16.5	16.5
Retirement at age 62/20 years:				
Total rate	48.7	47.9	47.2	46.5
(Without C.A. plan)	(34.6)	(33.8)	(31.2)	(32.5)
Pension	22.2	23.9	25.4	26.7
OASDI	12.4	9.9	7.8	5.8
C.A. plan	14.1	14.1	14.1	14.1
Total at age 80 [1]	42.2	40.8	39.8	38.7
(Without C.A. plan)	(28.1)	(26.8)	(25.7)	(24.6)
Pension	15.6	16.8	17.9	18.8
OASDI	12.4	9.9	7.8	5.8
C.A. plan	14.1	14.1	14.1	14.1
Retirement at age 62/30 years: [1]				
Total rate	72.2	71.0	69.8	68.7
(Without C.A. plan)	(52.4)	(51.1)	(49.9)	(48.8)
Pension	32.9	35.6	37.8	39.9
OASDI	19.4	15.5	12.1	8.9
C.A. plan	19.9	19.9	19.5	19.9

TABLE D-30.—GROSS REPLACEMENT RATES, ILLUSTRATIVE PLAN IV—50-PERCENT OFFSET PLAN WITH AN EARLY RETIREMENT REDUCTION, HIGH CAPITAL ACCUMULATION (C.A.) PLAN [NO EMPLOYEE CONTRIBUTION], ACCRUAL RATE = 1.63—Continued

	(Final salaries have been adjusted to 1984 dollars)			
	$15,000	$30,000	$45,000	$65,000
Total at age 80 [1]	62.5	60.5	58.6	57.0
(Without C.A. plan)	(42.7)	(40.6)	(38.8)	(37.1)
Pension	23.2	25.1	26.7	28.2
OASDI	19.4	15.5	12.1	8.9
C.A. plan	19.9	19.9	19.9	19.9
Retirement at age 67/30 years:				
Total rate [1]	85.2	82.0	79.1	76.5
(Without C.A. plan)	(61.9)	(58.8)	(55.8)	(53.2)
Pension	32.9	35.3	37.6	39.6
OASDI	29.0	23.4	18.2	13.6
C.A. plan	23.3	23.3	23.3	23.3
Total at age 80 [1]	77.8	74.2	70.7	67.7
(Without C.A. plan)	(54.6)	(50.9)	(47.5)	(44.4)
Pension	25.6	27.4	29.2	30.8
OASDI	29.0	23.4	18.2	13.6
C.A. plan	23.3	23.3	23.3	23.3
Retirement at age 67/40 years:				
Total rate [1]	112.4	108.4	105.2	102.2
(Without C.A. plan)	(79.8)	(75.8)	(72.6)	(69.5)
Pension	43.3	47.4	50.5	53.6
OASDI	36.5	28.4	22.0	16.0
C.A. plan	32.6	32.6	32.6	32.6
Total at age 80 [1]	102.8	97.8	93.9	90.2
(Without C.A. plan)	(70.2)	(65.2)	(61.3)	(57.6)
Pension	33.6	36.8	39.3	41.6
OASDI	36.5	28.4	22.0	16.0
C.A. plan	32.6	32.6	32.6	32.6

[1] These totals assume that the individuals participate fully in the capital accumulation plan.

Note: These rates are for persons retiring in the year 2030. Comparable current CSRS rates are 10 years service, 15%; 20 years, 34%; 30 years, 53%; and 40 years, 72%. Total rates may not add due to rounding.

TABLE D-31.—GROSS REPLACEMENT RATES, ILLUSTRATIVE PLAN V—ADD-ON PLAN WITH A EARLY RETIREMENT REDUCTION, 50 PERCENT COLO, HIGH CAPITAL ACCUMULATION (C.A.) PLAN [NO EMPLOYEE CONTRIBUTION], ACCRUAL RATE = 1.26

	(Final salaries have been adjusted to 1984 dollars)			
	$15,000	$30,000	$45,000	$65,000
Retirement at age 55/30 years:				
Retirement at age 55/30 years:				
Total rate	44.3	44.3	44.3	44.3
(Without C.A. plan)	(27.8)	(27.8)	(27.8)	(27.8)
Pension	27.8	27.8	27.8	27.8
C.A. plan	16.5	16.5	16.5	16.5
Total at age 62 [1]	60.6	56.5	53.2	49.9
(Without C.A. plan)	(44.1)	(40.0)	(36.6)	(33.4)
Pension	24.3	24.3	24.3	24.3
OASDI	19.8	15.7	12.3	9.0
C.A. plan	16.5	16.5	16.5	16.5

TABLE D-31.—GROSS REPLACEMENT RATES, ILLUSTRATIVE PLAN V—ADD-ON PLAN WITH A EARLY RETIREMENT REDUCTION, 50 PERCENT COLO, HIGH CAPITAL ACCUMULATION (C.A.) PLAN [NO EMPLOYEE CONTRIBUTION], ACCRUAL RATE = 1.26—Continued

	(Final salaries have been adjusted to 1984 dollars)			
	$15,000	$30,000	$45,000	$65,000
Total at age 80 [1]	53.4	49.3	46.0	42.7
(Without C.A. plan)	(36.9)	(32.8)	(29.5)	(26.2)
Pension	17.1	17.1	17.1	17.1
OASDI	19.8	15.7	12.3	9.0
C.A. plan	16.5	16.5	16.5	16.5
Retirement at age 62/20 years: [1]				
Total rate	50.0	47.5	45.4	43.3
(Without C.A. plan)	(35.9)	(33.4)	(31.3)	(29.3)
Pension	23.5	23.5	23.5	23.5
OASDI	12.4	9.9	7.8	5.8
C.A. plan	14.1	14.1	14.1	14.1
Total at age 80 [1]	43.1	40.6	38.4	36.4
(Without C.A. plan)	(29.0)	(26.5)	(24.4)	(22.3)
Pension	16.6	16.6	16.6	16.6
OASDI	12.4	9.9	7.8	5.8
C.A. plan	14.1	14.1	14.1	14.1
Retirement at age 62/30 years: [1]				
Total rate	74.6	70.6	67.2	64.0
(Without C.A. plan)	(54.7)	(50.7)	(47.3)	(44.2)
Pension	35.2	35.2	35.2	35.2
OASDI	19.4	15.5	12.1	8.9
C.A. plan	19.9	19.9	19.9	19.9
Total at age 80 [1]	64.2	60.2	56.8	53.6
(Without C.A. plan)	(44.3)	(40.3)	(36.9)	(33.8)
Pension	24.8	24.8	24.8	24.8
OASDI	19.4	15.5	12.1	8.9
C.A. plan	19.9	19.9	19.9	19.9
Retirement at age 67/30 years: [1]				
Total rate	87.5	81.9	76.8	72.1
(Without C.A. plan)	(64.3)	(58.6)	(53.5)	(48.8)
Pension	35.2	35.2	35.2	35.2
OASDI	29.0	23.4	18.2	13.6
C.A. plan	23.3	23.3	23.3	23.3
Total at age 80 [1]	79.7	74.1	68.9	64.3
(Without C.A. plan)	(56.4)	(50.8)	(45.6)	(41.0)
Pension	27.4	27.4	27.4	27.4
OASDI	29.0	23.4	18.2	13.6
C.A. plan	23.3	23.3	23.3	23.3
Retirement at age 67/40 years: [1]				
Total rate	116.7	108.6	102.	96.1
(Without C.A. plan)	(84.1)	(76.0)	(69.6)	(63.6)
Pension	47.6	47.6	47.6	47.6
OASDI	36.5	28.4	22.0	16.0
C.A. plan	32.6	32.6	32.6	32.6
Total at age 80 [1]	106.1	98.0	91.6	85.6
(Without C.A. plan)	(73.5)	(65.4)	(59.0)	(52.9)
Pension	37.0	37.0	37.0	37.0
OASDI	36.5	28.4	22.0	16.0
C.A. plan	32.6	32.6	32.6	32.6

[1] These totals assume that the individuals participate fully in the capital accumulation plan.

Note: These rates are for persons retiring in the year 2030. Comparable current CSRS rates are 10 years service, 15%; 20 years, 34%; 30 years, 53%; and 40 years, 72%. Total rates may not add due to rounding.

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